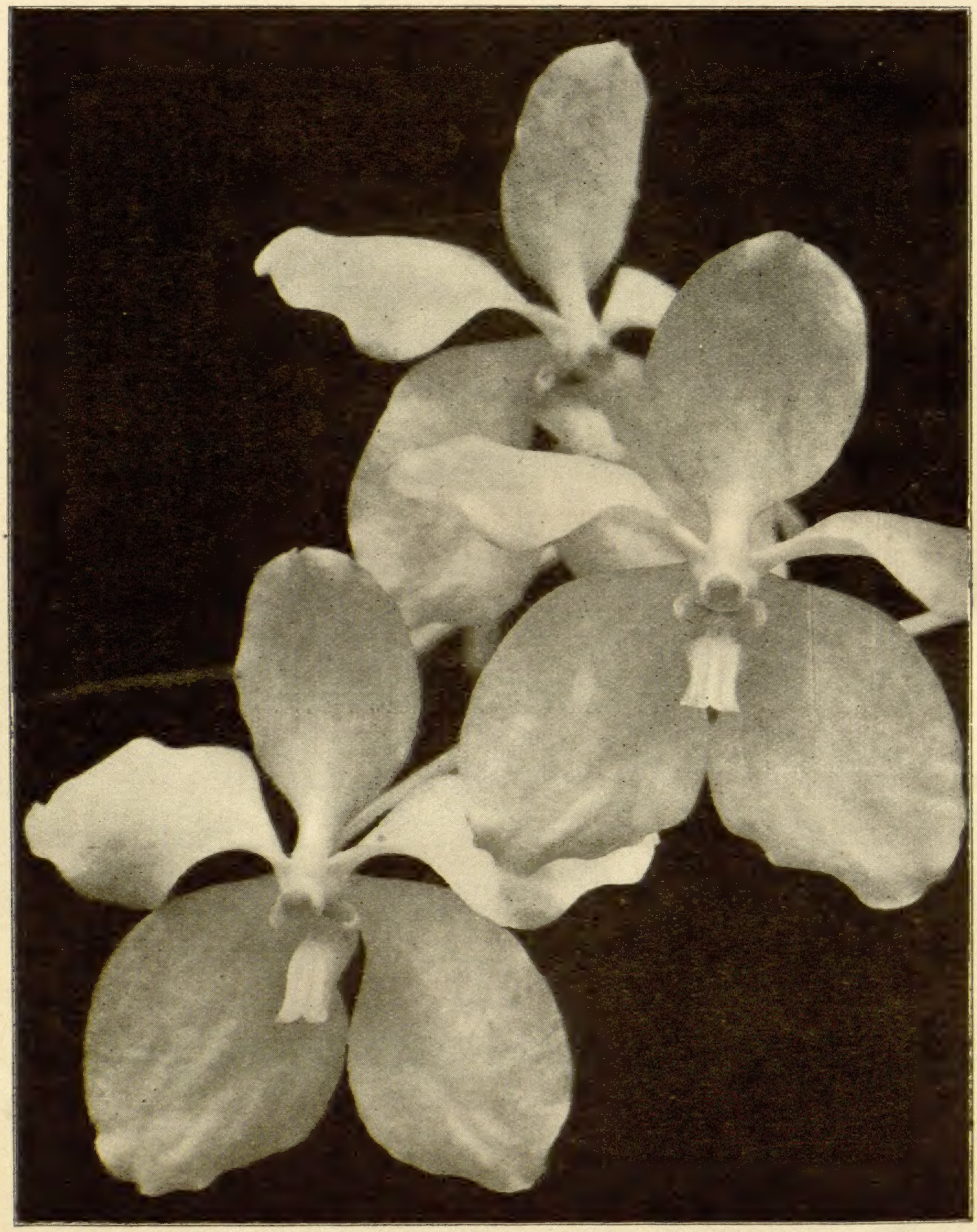

VANDA CŒRULEA VAR. CHARLESWORTHII.

(*See page* 170).

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THE ORCHID REVIEW

An Illustrated Monthly Journal

OF ORCHIDOLOGY

EDITED BY R. ALLEN ROLFE, A.L.S., F.R.H.S.

VOLUME XXVIII

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To

H. T. PITT, Esq.,

Rosslyn, Stamford Hill, N.,

ONE OF OUR OLDEST

AND MOST ENTHUSIASTIC ORCHIDISTS,

THIS TWENTY-EIGHTH VOLUME OF THE "ORCHID REVIEW,"

IS CORDIALLY DEDICATED.

Kew,

December, 1920.

The Orchid Review

VOL. XXVIII. JAN.-FEBRUARY, 1920. NO. 325-326.

OUR NOTE BOOK.

THE year 1919 will doubtless in the future come to be regarded as a transition period, marking the close of a great world tragedy, and the dawn of a brighter and better era. A normal year could not in any case be expected. First and foremost we welcome the return of our "boys" to the peaceful pursuits of Horticulture and Orchidology, where their presence is greatly needed, though the gallant efforts of an army of volunteers of both sexes to "carry on" during their absence, which merits our warmest commendation, has saved the situation. Our collections may be depleted, they have not been destroyed, and will doubtless rival their old time brilliancy as normal conditions return.

The fortnightly meetings of the Royal Horticultural and Manchester Orchid Societies have invariably produced something of interest, though the exhibits have necessarily been restricted by the abnormal conditions, and the resumption of the R.H.S. Spring Show at Chelsea after a lapse of two years, though on a somewhat reduced scale, was attended with marked success, and four Gold Medals were awarded to Orchids. In place of the Summer Show there was a special Exhibition, five weeks later, on behalf of the War Horticultural Relief Fund, when Orchids were again staged in excellent condition, five groups being distinguished by the award of Gold Medals. On this occasion the Orchid Committee did not meet.

The Orchids certificated by the Society are probably judged on an increasingly severe standard, for the First-class Certificates number only 11, against 64 Awards of Merit, while 11 Preliminary Commendations were also given. The Cultural Commendation, which is given in recognition of superior culture, has been awarded on seven occasions. It is curious how the First-class Certificate has been monopolised by the Cattleya group, the only exceptions being Disa Blackii var. grandiflora and Odontioda Lady Veitch. The others were four Brassocattleyas, three Læliocattleyas, two Sophrocatlælias, and one Brassocatlælia. The Manchester Orchid Society has also given a large number of certificates during the year.

One might speak of progress in Hybridisation, for hybrids, practically speaking, monopolise the Award List. It is true there were five exceptions, but they were all Cultural Commendations given to exceptionally well-grown examples of wild species, namely: Aërides odoratum album, Bulbophyllum Balfourianum, Cattleya Mossiæ Arnoldiana, Lælia monophylla, and Sarcopodium acuminatum. As to the hybrids themselves, they were mainly representatives of well-known popular genera, which it would take far too long to summarise. We may, however, mention two new hybrid genera, which have been named in accordance with the rule applicable to such cases. These were Charlesworthiara, derived from Miltonioda × Oncidioda, and thus combining the three genera, Cochlioda, Miltonia, and Oncidium, and Rolfeara, from Sophrocattleya × Brasso-cattleya, thus uniting Brassavola, Cattleya, and Sophronitis.

———

Coming to interesting events, we note the successful termination of an experiment to prove the parentage of the hybrid Odontoglossum Humeanum, which occupied no fewer than nineteen years. The history has been fully recorded, and the award of a Certificate of Appreciation was a fitting conclusion to the experiment. The appearance of female flowers of Catasetum Rodigasianum at the Royal Botanic Garden, Glasnevin, was another interesting event. An important contribution to the history of the remarkable genus Cycnoches has been made by our Central American friends, Mr. C. H. Lancester and Mr. C. W. Powell, the former in re-discovering the long-lost Cycnoches Dianæ, Rchb. f., and the latter in obtaining flowers of both sexes, the females being previously unknown. Two papers on British Natural Hybrids must not be overlooked, for the result of prolonged research has shown that no fewer than fifteen natural hybrids have been identified within the confines of the United Kingdom, and their histories have now been given. The recognition of the remarkable Arachnanthe Lowii as a distinct genus may also be mentioned, and the contributions to the history of Mendelism, contained in our two last issues, which show that Mendel's discoveries were anticipated by three of our own countrymen, and by a period of over forty years.

———

Losses during the year include such old and well-known names as Mr. Robert Johnson, Mr. William Swan, Sir Frank Crisp, and Mr. J. J. Neale, while the United States has to deplore the death of Mr. D. S. Brown, for many years one of its leading Orchidists.

———

Of the future we can only speak in terms of hope. The great need of the future is security, and one cannot contemplate the recurrence of such another calamity as the world has just passed through. A contemplation

of the horror depicted at page 109 of our last volume should convert any halting Orchidist into an earnest supporter of the League of Nations, for in it lies the greatest hope of security for the future.

THE ORCHID REVIEW TWENTY-FIVE YEARS AGO.

TWENTY-FIVE years ago the *Orchid Review* was commencing its third volume, and it is interesting to glance back to the current topics of the period. The January issue contained a fine photograph of the plant of Cattleya Victoria-Regina in the collection of W. Thompson, Esq., which it was shown was a natural hybrid between C. labiata and C. Leopoldii var. pernambucensis, which grow together in the Pernambuco district. Natural hybrids were well to the fore, for a note about Cattleya O'Brieniana suggests its origin as a natural cross between C. Loddigesii and C. dolosa, received from the same region, and another article showed that Cypripedium siamense, described as a species before the second parent was known, was also a natural hybrid between C. callosum and C. Appletonianum. We may add in passing that it was this article that led Mr. Reginald Young, of Liverpool, to make the experiment which settled the matter, and, fortunately, he had the two species in bloom together at the time. A third article was devoted to Cypripedium insigne and its varieties, two dozen of the more distinct being described, including the remarkable form with lip-like petals, which was afterwards figured as var. Oddity.

Willow roots as a substitute for peat was discussed by Mr. A. Annandale, an amateur grower of the period, and there is an interesting note on the successful culture of Cœlogyne cristata alba by Mr. R. Brooman White, who is, happily, still devoted to the cult. The Calendar of Operations was in the capable hands of Mr. H. A. Burberry, who had charge of the fine collection of Mr. Joseph Chamberlain, at Highbury. The six new hybrids described were Epidendrum Wallisio-ciliare, Læliocattleya trentonensis, and four Cypripediums, and a summary of the Orchids of 1894 includes hybrids from twenty-three different raisers. The flowering at Kew of two species of the primitive genus Neuwiedia is also recorded, and the appearance of the female of Cycnoches Loddigesii in the collection of H. J. Elwes, Esq., after a lapse of over half-a-century. Mr. O. O. Wrigley had a note on a batch of forty or fifty Cypripedium Charlesworthii which he had flowered.

The February issue contains an article on Mexican Hybrid Lælias, the Culture of Dendrobiums by Mr. James Cypher, figures of Dendrobium Hildebrandii and Coryanthes macrantha at home, and numerous other notes, in addition to the usual reports of Exhibitions. A spirited discussion on the origin of the polymorphic Catasetum splendens also indicates that natural hybrids were a burning question in those far-off days.

ORCHIDS AT BLETCHLEY PARK.

TWENTY years ago the Orchids at Bletchley Park were better known than they have been in recent years, and in those far-off days, when the producing of Orchids from seed was still the work of a select few, two very fine hybrids were raised and flowered here—namely, Læliocattleya bletchleyensis and Cattleya Maggie Raphael. These have been produced in considerable numbers in other collections since that time, and the Cattleya hybrid is quite one of the best and surest flowerers of all Cattleyas at Christmas and the New Year; unlike so many hybrids—notably those of the second degree—being consistent and fixed in its season, and just the season when Cattleya flowers are scarcest and in most demand. C. Maggie Raphael is the result of crossing C. Trianæ with C. Dowiana aurea, and there are now numerous fine white forms in collections, a good white form of Trianæ making one of the parents.

Sir Herbert and Lady Leon are both very keen gardeners, and take a great pleasure and interest in their Orchid collection. Sir Herbert is fond of large blooms of good colour, such as are represented by the primary Lælia purpurata crosses—Læliocattleya callistoglossa, Lc. Dominiana, and suchlike, and a fair number of these are in the collection. Albino Cattleyas and those of yellow tints are also much admired, but few Orchids exist, probably, that when healthily grown and flowered, they would not admire, and the collection is a very Catholic one, the three great sections—Cattleya, Odontoglossum and Cypripedium being well represented, and besides there is a good collection of the less showy kinds, which are broadly classed as botanical Orchids.

Early in the war, when labour was scarce or inexperienced, the gardens at Bletchley passed under the management of Mr. W. T. Watson, the agent. Mr. Watson is first and foremost a farmer, whose forte is cattle breeding, and he is known far and wide in this important industry, the herds at Bletchley have produced endless prize-winners, but notwithstanding his many interests and duties he applied himself to gaining some knowledge of the Orchids, and is now quite at-home with the nomenclature and has a very good eye for a well-grown and clean plant, and is sound in his judgment of a good variety. Being unable to find a man at this period to take charge of the collection, he presuaded his elder daughter to become grower *pro tem.*, and this position she held until the close of the war. She entered into the work with enthusiasm, seeking information and advice when opportunity offered, and became at once an interested and keen Orchid grower, and not only succcssfully brought the collection through,

but added much to its vigour. Miss Watson had zest and enthusiasm, and it was a sad day for Orchidology when she got married!

The collection is contained in some seven houses or divisions, which run out of, or are connected by, a corridor, so that the whole block of houses may be viewed without going outside. A feature of some of the houses is that the brick ends are fitted with pockets, which are tastefully planted with ferns and suitable foliage plants, interspersed with Orchids that are among the more easily grown, such as Cypripediums and Cymbidiums, making a kind of rockery of exotic plants, which gives a finished and pleasing effect. It is proposed to carry this idea throughout all the houses.

The Odontoglossum house is a commodious one of good width, but without centre staging. The plants are arranged round the sides, while from the centre are suspended a good selection of Masdevallias, including a number of the Chimæra section. The Odontoglossums are mostly crispum, but there are a good number of hybrids and Odontiodas, good examples of O. Bradshawiæ, Brewii, Zephyr, Charlesworthii, etc., being noted, while at one end is a good selection of Cymbidiums.

We lead out of this house into a corridor which is divided into three compartments. From the roof of the first division are suspended two dozen fine plants of Odontoglossum citrosmum and other things, while on the stages are a number of Thunia Marshalliana, T. Winniana, Miltonia Hyeana, M. Bleuana, M. Lyoth, Zygocolax Veitchii, and the rare Promenæa Crawshayana. In the second division are plants of Renanthera Imschootiana, Vanda cœrulea, and back divisions of the better plants of the collection are here collected together for purposes of propagation. A notable plant here is a healthy piece of a fine Cattleya Mossiæ Wageneri, which received an award as far back as 1898. This plant flowered last season, and was a really fine thing. Cattleya Mossiæ has a name for deteriorating in cultivation, but there are some historical plants which point the other way, and probably the most famous is C. M. McMorlandiæ, which received a First-class Certificate from the R.H.S. in 1868. At least one healthy piece of this plant is in cultivation, and it would be interesting to hear of any other Cattleya species being as long in cultivation as this one. The third division of the corridor contains a collection of Calanthes, including C. Wm. Murray, C. bella, C. Harrisii, etc.

My visit took place in November last, when a lot of seasonable things were in flower, and a selection from the various houses were arranged in a division recently fashioned for a show-house. The advantages of the show-house are that the atmosphere may be kept drier than where the plants have been growing, and they may here be better arranged for effect with foliage plants. Strong, well-flowered plants of Cattleya Bowringiana, C. labiata, C. Fabia, C. Astron, C. Minucia, with an inflorescence of eight

flowers, Lælia Gouldiana with two fine spikes, Læliocattleya Britannia, a number of Cypripediums and many other things made a good show.

There are three Cattleya houses at Bletchley Park, well stocked with a good variety of Brassocattleyas, Læliocattleyas, etc. One of these is filled chiefly with home-raised seedlings of a fair size, and one is used more as a resting house during the winter, being occupied with plants that have recently flowered and are now dormant. A good number of albinos were pointed out, and many interesting choice things, among which I might mention C. Golden King var. Peter, C. Lady Leon, a fine variety of C. Soulange, Lc. Rex, Lc. Olenus, C. Hardyana alba, good batches of C. gigas, C. Dowiana aurea, etc.

A division is devoted to Vandas, Angræcums, and Aërides, and fine healthy plants of V. tricolor, suavis and Amesiana were noted, together with Angræcum sesquipedale, Aërides Fieldingii, Sobralia xantholeuca, and other interesting plants which enjoy the moist warm temperature here maintained.

The Cypripedium house was quite gay with flowers at the time of my visit, and emphasized the importance of this section as winter bloomers. The plants were in a very fine condition, and being mostly specimen plants with numerous growths in flower, and the flowers well developed on long stems, they were seen at their best. Most of the well-known good hybrids are grown, such as Gaston Bultel, Thalia in variety, Lord Ossulston, many varieties of Leeanum, including Gratrixiæ. This was a very fine display indeed.

It is a matter for congratulation that Sir Herbert and Lady Leon maintain so keen an interest in their Orchid collection, which gives promise of still further development in the future.

The cultural charge is in the hands of Mr. W. Field, who is to be complimented on the general healthy condition of the plants.

J. M. BLACK.

ONCIDIUM INCURVOPHORUM.—A distinct and attractive hybrid raised by Messrs. Charlesworth & Co., Haywards Heath, from O. incurvum and O. corynephorum, the latter being the remarkable Peruvian species which is figured as the frontispiece to our thirteenth volume. The flower is most like O. incurvum in shape, but has a broad rounded front lobe to the lip, in this respect recalling the second parent. The flowers are lilac-coloured with a purple lip. The habit is that of O. incurvum, the straggling character of the other parent having been lost. If pollen is at any time available, we would suggest that the hybrid should again be crossed with O. cornephorum, in order to improve further the shape of the flowers, for the colours are completely in harmony.

OBITUARY.

DANIEL SIDNEY BROWN.—We much regret to hear of the death, on November 17th last, of this old and much esteemed American Orchidist, of St. Louis, Missouri. The news is conveyed in a press cutting sent by Messrs. Julius Roehrs, Rutherford, New Jersey, who remark that the deceased was one of our biggest fanciers of Orchids. The cutting bears the date, November 18th, 1919, and is as follows: "A blanket of Orchids to cover the top of the casket was sent to-day to the funeral of Daniel Sidney Brown, 66 years old, widely known as a collector of Orchids, by the Missouri Botanical Garden, to which Brown had given the larger part of his collection, rated as the best in America. Brown died at his home, 5122, Washington Boulevard, at 12.50 p.m. yesterday, of paralysis. The funeral was held this afternoon from the home. There were 150 blooms of rare lady slipper Orchids in the floral blanket. All used were from the collection which Brown had donated. In this collection was a Cattleya from South America for which Brown paid $500. It happened that the plant was blooming at this time, and was used in the blanket." We may add that Mr. Brown was an old correspondent of the *Orchid Review*, dating from June, 1896, and the possessor of a complete set of the work.

J. J. NEALE.—Orchidology has suffered another severe loss in the death of J. J. Neale, Esq., of Oxton, Kenton, near Exeter, which took place on December 29th last, after an operation for appendicitis, at the age of 65. For over thirty years Mr. Neale has been an enthusiastic Orchidist, commencing in a small way, then adding a number of plants secured at a sale at Bath, which formed the nucleus of his present large and varied collection. Our acquaintance with the deceased began early in 1897, when he became a subscriber to the *Orchid Review*. He was then resident at Penarth, Glamorganshire, cultivating his Orchids personally, but with the growth of the collection and the claims of a business at Cardiff, he engaged Mr. E. W. Davy (afterwards at Kew, and now in Colonial Service in Africa), to assist him. In April, 1903, an account of the collection appeared in our pages (xi. pp. 101, 102), when it contained over 400 distinct species, and an aggregate of about 2,000 plants. Since then we have frequently received flowers from him, as our pages will testify, largely species of botanical interest, varied with an occasional hybrid, the latter becoming more frequent as time went on. When Mr. Davy removed to Kew, Mr. H. Haddon was engaged as gardener, and was with Mr. Neale until War service claimed him, after which he was followed by Mr. E. Swinden, formerly with Sir Trevor and Lady Lawrence. Mr. Neale's removal to

Devonshire is of comparatively recent date, but there are notes at pp. 115, and 176 of our last volume, in which he speaks of building a large cool house for Odontoglossums, and of his fortunate possession of an abundance of sphagnum and peat fibre on the estate, at a time when War restrictions made these essential materials difficult to obtain. Mr. Neale was a good all-round naturalist, and a great lover of plants. One of his chief delights was a collection of Insectivorous plants, which were grown with the Orchids, and some of our readers may remember his exhibit at the Royal Horticultural Show at Chelsea in 1913, to which a Gold Medal was awarded. Two photographs of Droseras, showing the most remarkable vigour, are in our possession. Mr. Neale enjoyed the warm friendship of Principal A. J. Trow, Professor of Botany at Cardiff University, and of Mr. H. G. Alexander, of Westonbirt, who were frequent visitors at Oxton. The splendid specimens of trees on his new estate near the mouth of the Exe were a source of delight to Mr. Neale. It may be added that a few days before his fatal illness Mr. Neale spent many hours in cutting and packing boxes of choice flowers to his friends as Christmas presents. He leaves a widow, six sons, and three daughters, His many friends will be pleased to hear that the collection is to be maintained under the care of Mr. Swinden, and that the plans he had in view will be carried out.

ORCHIDS FROM COOKSBRIDGE.—Flowers of two very interesting hybrids have been communicated by Messrs. J. & A. McBean, Cooksbridge, who exhibited them at the R.H.S. meeting held on November 18th last.

ODONTOCIDIUM NANETTE (Oncidium incurvum × Odontoglossum Harryanum).—A distinct and interesting hybrid, having vinous-purple, somewhat undulate and spreading sepals and petals, rather over an inch long, and an ample, obovate, three-lobed white lip, with a large vinous purple blotch in front of the spiny crest, which is brown with a few yellow splashes, the column also being Oncidium-like in character. Thus it most recalls a greatly enlarged Oncidium, but the influence of the pollen parent is seen in the greatly enlarged lip and spiny crest. A second cross with the Odontoglossum would be interesting.

ONCIDIODA CORA (Cochlioda Nœtzliana × Oncidium Schlimii).—This might almost be described as an Oncidium with red sepals and petal, and the lip suffused with orange, this giving the flowers a very distinct and attractive appearance. Had it appeared as a wild plant it would probably have been described as a very pretty new species of Oncidium, for the shape, the crest of the lip, and the wings of the column are quite characteristic, and the habit is quite Oncidium-like. The lip, however is united to the column for a line at the base, and the colour also shows strongly the influence of the Cochlioda parent.

HYBRID ODONTOGLOSSUMS.

LAST year we were delighted to welcome several of our old Belgian subscribers back after the tragedy of the War, and we are glad to know that the circle is being enlarged. Ere long we hope to see some of their

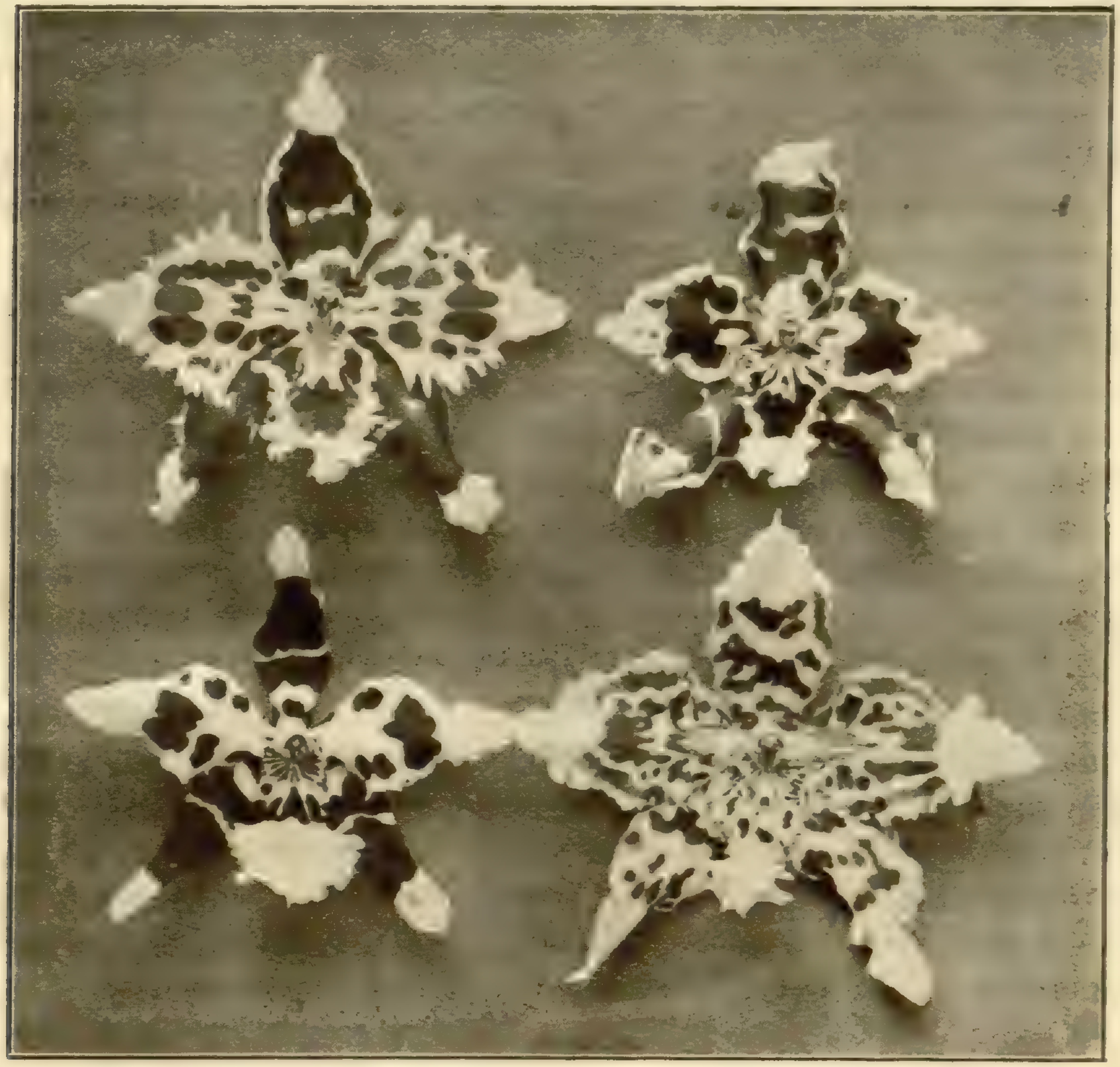

Fig. 1. O. WILCKEANUM VAR. THALIA.

Fig. 2. O. RUBICANS.

Fig. 3. O. ALTUM VAR. BELLONE.

Fig. 4. O. AMABILE VAR. GOLIATH.

productions again at Chelsea; meantime the annexed block serves to recall some of the earlier successes of our old friend, M. Ch. Vuylsteke, of Ghent, who was one of the pioneers of Odontoglossum raising. The figures represent four varieties that were staged in a fine group at the Temple Show in 1906, to which the Lindley Medal was awarded. The flowers shown are about half natural size, and were taken on an isochromatic plate, so that

the colours are represented as nearly as possible in their proper values. The photograph was taken by Mr. C. P. Raffill.

O. WILCKEANUM VAR. THALIA (fig. 1) is the result of a cross between O. crispum and O. luteopurpureum, and has a light yellow ground colour and dark chocolate-brown markings. The shape is excellent, and the well-toothed petals recall some of the wild hybrids of similar origin. In this case, choice forms of both parents were selected as parents.

O. RUBICANS (fig. 2) is a plant of doubtful origin, probably a secondary hybrid in which a blotched crispum was one of the original parents. When it appeared, we suggested that it might be a heavily blotched form of O. nitidum (Harryano-crispum × Wilckeanum), as there is a trace of O. Harryanum about the crest. The ground colour is nearly white, and the large blotches deep red-purple, rather more brown on the lip. We have not heard whether the batch of seedlings from which it appeared has been traced.

O. ALTUM VAR. BELLONE (fig. 3) was exhibited as O. ardentissimum × Hallii, but the shape and details of the lip are more in character with O. Pescatorei as the first parent. The ground colour is white, and the large blotches deep chocolate, forming a very attractive combination.

O. AMABILE VAR. GOLIATH (fig. 4) is a fine form of this well-known hybrid, and the flowers have an expanse of $4\frac{1}{4}$ inches. It came from a batch of O. spectabile × crispum, and has copious light cinnamon blotches on a white ground. It is a handsomely marked form.

ORCHIDS FROM USK PRIORY.—Some very interesting Orchids have been sent from the collection of R. Windsor Rickards, Esq., Usk Priory, Monmouthshire. Sophrocattleya Ramilles (Sc. warnhamensis × C. Empress Frederick), is a brilliant thing, the flowers being of excellent shape, with broad, rose-coloured sepals and petals, and the lip with darker veining in front, and some yellow veining on the orange-coloured disc. Brassocattleya Enid (C. Enid × Bc. Leemaniæ) is a finely-shaped hybrid, with rose-purple sepals and petals, and a light yellow disc to the undulate and prettily fringed lip. The third is from Sophrocattleya Saxa × Brassocattleya Leemaniæ, and thus is a second member of Mr. Thwaites' genus, Rolfeara (*O.R.*, xxvii. p. 3). It is a seedling raised by Messrs. Flory & Black, and the name Rolfeara Ceres is suggested. The scape bears two large flowers, most like the Brassocattleya parent in shape, and the colour is very light rosy mauve, with a chrome yellow disc to the undulate and neatly fringed lip. The object was to unite the scarlet of one original parent with the Cattleya shape, and in this respect is not a success, but other seedlings of the batch may behave differently. It may prove difficult to combine the scarlet of one original parent with the Brassavola fringe.

ORCHIDS IN COSTA RICA.

SOME additional dried flowers of Costa Rican Orchids have been sent by Mr. C. H. Lankester, Agua Caliente, Costa Rica, one of which is the subject of a special note. Mr. Lankester recently spent a week near the junction of the Parismena and Reventazon rivers, and he remarks that although one cannot explore the epiphytal contents of the woodland unless recent felling has occured, there is nearly always a key to what the district contains from fallen trees or branches, and the river banks, invariably lined by Pithecolobium cognatum, are an index to what occurs locally. Further, many species from the higher zones follow down the rivers. Remarkably few Orchids occur in the high forests of the coastal region on the Atlantic slope, and the only ones encountered during this trip were Trigonidium, Aspasia, one plant of Cattleya Deckeri, and a Maxillaria, said to be a common coastal species, of which a dried flower, and a reduced pen and ink sketch are sent. It is nearly allied to M. setigera, and from a search among descriptions of Costa Rican species not represented at Kew, we believe it to be :—

MAXILLARIA ENDRESII, Rchb. f. (*Gard. Chron.*, 1886, i. p. 680).—The author remarks: "This flowered in 1870, in the Hamburg Botanic Garden, having been sent alive with Sievkingia by the late Mr. Endres, to whose memory it is now dedicated. I made a sketch in colours, but never published it. Now it has re-appeared, also from Costa Rica, in the establishment of Messrs. Hugh Low & Co., whence it has been kindly sent me by Mr. Edward Low. It belongs to the group of Maxillaria setigera, Lindl." Then follows a description, which agrees so closely with the materials sent that, until a second species of the group is found in Costa Rica, it may be regarded as representing the same species. The flower sent has narrow sepals and petals, about two inches long, which are described as wax yellow in colour, paler at the base, and the lip white at the edges, with a broad, cuneiform, light cadmium blotch in the centre of the front lobe, and the side lobes, also the front of the column, stained with maroon.

Mr. Lankester has recently made an importation of Cattleya Trianæ, C. Warscewiczii (gigas), and Odontoglossum crispum from a Colombian locality, but they were so long *en route* that none of the Odontoglossums survived the trip. The others were fair, but it was painful to have to throw away dozens of fine plants that were ruined by their long stay in the ports. The cases took two months to get from Honda to Port Limon.

He kindly promises a few notes to supplement a recent article on Orchids at home, which will be greatly appreciated. R.A.R.

CALENDAR OF OPERATIONS FOR JAN.-FEBRUARY.

By J. T. BARKER, Orchid grower to His Grace the Duke of Marlborough, Blenheim Palace, Woodstock, Oxon.

ONCE more we review the cycle of cultural routine, and we may now hope for a speedy return to pre-war conditions. Orchids, despite the many difficulties which still attend their culture, have lost none of their popularity, and when the existing troubles pass away, we may look for many accessions to the ranks of Orchid lovers and growers. The war has undoubtedly caused a serious setback to Orchid culture, but progress has been maintained, at all events so far as hybridisation is concerned, and if a return to normal conditions can be secured, things should soon right themselves again. Orchids are not only a delightful hobby, but they have become an important branch of decorative horticulture, thanks to the persistent efforts of the hybridist. The amount of progress since the *Orchid Review* was founded, twenty-seven years ago, is marvellous, as may be found in its pages, and the record itself is an achievement. It has not been accomplished without hard and persistent work, and the difficulties caused by the war must have made it well-nigh impossible. A tribute of appreciation for such an achievement is due from one who has known and valued the work from the commencement.

TEMPERATURES.—For the benefit of new readers and beginners in Orchid culture, I will give the most suitable temperatures for the different departments :—

Cool house ; day, 50° to 55° ; with sun, 60° ; night, 50°.

Intermediate house : day, 60° to 65° ; with sun, 66° ; night, 57° to 60°.

Cattleya and Mexican house : day, 60° to 65° ; with sun, 68° ; night, 58°.

East Indian house : day, 65° to 70° ; with sun, 75° ; night, 65°.

These figures are given as a guide, but slight variations are permissible in accordance with the outside conditions. Sun-heat should be utilised to raise the temperatures a few degrees. A regular, even temperature should be maintained as far as possible. In large establishments there are frequently houses that are kept at temperatures a little higher or lower than the figures given, and this provides suitable conditions for a greater variety of plants. The small grower in many cases suffers from the smallness of his houses, as these fluctuate more quickly than those of larger size. Success depends entirely upon the conditions provided for the different plants which go to make up our collections, and even when the best possible conditions are provided, some districts are more favourable for certain plants than others.

The principal work for the period under consideration consists in

maintaining the proper temperatures in the various houses, providing suitable atmospheric conditions, and the cleaning of the plants and houses, so that when the growing season comes round everything can start without any impediment. For the present, everything should be kept as quiet as possible, no attempt being made to push plants into growth or flower, for premature growth made during the winter is weak and unsatisfactory.

VENTILATION of the different houses is essential whenever possible, as no plants can thrive and grow luxuriantly without fresh air. At this season some discretion must be used in its admission, but it must be done by some means every day, as a dry stagnant atmosphere is most injurious. The observant cultivator will soon find the difference between a badly ventilated and a judiciously ventilated house, not only by his own personal comfort, but in the health and vigour of his plants. It is astonishing what can be accomplished by opening a single ventilator, if only an inch or two, for a space of half an hour or so during the day. The houses vary considerably in their requirements, according to the plants grown in them, so that no definite rule can be laid down. Orchids, like animals, must have fresh air, but, like them, should not be exposed to draughts, which must be avoided at all times. To those who do not succeed exactly as they would like, I urge a closer study of the atmospheric conditions of the houses.

ATMOSPHERIC MOISTURE is another essential factor which must be regulated according to the outside conditions and the amount of heat in the respective houses. Should the outside conditions be clear and bright, or should it have been necessary to use considerable fire heat, owing to frost, more moisture is required than when the outside atmosphere is dull and heavily charged with moisture. The two great things to avoid are a hot, parched atmosphere, and a cold saturated one; both are highly dangerous, and much harm may accrue from either.

WATERING.—The greatest care and attention must now be taken in the application of water to the compost. Many plants will be at rest, and these only require sufficient water to keep them plump, and prevent them from shrivelling; others will be growing, and require water whenever they become dry. A recognition of this difference is one of the secrets of successful cultivation. Too much water is as bad as too little, and both extremes are dangerous, though the latter is the lesser of the two evils. The application of water to the compost is one which should have the greatest consideration, especially during the dull, dark days of the winter. A safe rule to observe is to keep the plants rather on the dry side until growth or root action commences, trusting principally to the humidity in the atmosphere to assist in bringing the plants safely through the winter months. Many give their plants too much water during the winter, and not sufficient whilst in full growth. Most Orchids require rest, and their resting season

must be observed, but they should not be dried to such an extent that the roots or foliage suffer.

COMPOST.—A supply of the various potting materials used should be kept in stock, and stored so that they may be in the desired condition when required, neither too wet nor too dry. The different fibres may be prepared ready for use, so that when the busy season is upon us, we may dispose of the time at our disposal to the best advantage. If the different plants are not repotted at their proper seasons they get an unnecessary check, which may prove harmful. Speaking of composts, I would advise that drastic changes should not be made without deep consideration, as not only has the plant to take hold of the material, but the watering may be quite different. A continual change of rooting material is a source of trouble and much anxiety.

DENDROBIUMS of the deciduous section will now be in an advanced stage, and swelling up their flowering nodes quickly. Where good growth was obtained last year, and afterwards properly ripened, an abundant supply of flowers may be anticipated. On no account force them forward too quickly, as the majority of late winter and spring-flowering varieties develop much better and finer if brought along in a temperature of about 60°, giving sufficient water at the roots and in the atmosphere to keep the stems plump. Light and sun heat is a great aid in the development of the flowers of this large genus. It is yet early to attempt much repotting, but any seedlings or other plants which have started into growth may be done. I recommend a compost of equal portions of A1 fibre and clean sphagnum moss.

CYPRIPEDIUMS of the insigne section, also the many hybrids which produce their flowers at the same season, having now passed out of bloom, may receive attention as regards repotting should it be necessary. A suitable compost consists of equal parts of peat fibre, A1 fibre, and sphagnum moss, with some clean loam fibre added. To my mind, the latter can easily be overdone, especially if of a heavy nature, and therefore I recommend its use in reduced proportions. The pots must be well drained, and the new material kept on the dry side until the new roots have entered the material freely. These plants can be taken in hand as soon as their flowers are cut or faded, and after repotting they may be thoroughly cleaned and placed in their growing quarters, where, under the proper conditions, they should thrive until their flowers appear in the autumn.

CATTLEYAS.—These, for cultural purposes, may include all plants in which Cattleya enters into the parentage, now a very large and diversified group. Both the species and the hybrids have a certain individuality of their own, some producing thick fleshy roots, and others thin ones, and these matters affect their treatment. What would be a proper sized receptacle for strong rooting varieties, would be much too large for those

which produce thin roots, and are delicate growers. The Brassocattleyas, and the numerous Cattleya Dowiana hybrids are examples of the thin-rooting section, but there are many others. Plants which produced flowers during the late autumn and winter months may have fresh material afforded them, as soon as new roots are observed to be pushing from the base of the last made pseudobulb. The majority of these plants produce new roots twice a year, and may be repotted at either season, but preferably in the spring. A clean open material, made up of equal portions of peat, AI and osmunda fibre, and sphagnum moss, answers their requirements, and the plants should be potted firmly. The later-flowering varieties may be done when their flowering period has passed.

LÆLIA ANCEPS and its varieties are now flowering freely, and make a most attractive display, and coming when Cattleyas are somewhat scarce, are most useful and acceptable. After flowering, the plants should be kept moderately dry until new roots are observed to be pushing from the rhizome, when any necessary repotting may be undertaken. Coarse osmunda fibre makes a suitable compost, which should be thoroughly cleaned and placed in the receptacles quite firmly. Before being repotted, the plants should be thoroughly cleaned.

ODONTOGLOSSUMS will now be in all stages of growth; some just starting, others in full growth, whilst some are pushing up their flower spikes. The latter should be carefully and neatly staked as they attain sufficient length. Flowering plants are best placed by themselves, so that they can be examined from time to time for the presence of slugs, which devour the spikes and do irreparable harm. Small or weakly plants should have their spikes removed as soon as they are observed, as the production of flowers may mean the death of the plant. Should any plant be in need of fresh material, and its new growth in the desired condition, namely some few inches in height and about to push roots, it may be repotted. A compost of equal portions of peat and AI fibre and sphagnum moss, to which some broken leaves may be added, will answer their requirements. Newly potted plants at this season must be watered with extreme care.

CYMBIDIUMS, both species and hybrids, should have attention at the roots as soon as their flowers are over, should they be in need of it. As they resent root disturbance, this operation should only be performed when the compost becomes exhausted. A compost in which fibrous loam, of a lasting nature, is the main constituent, answers their requirements. The material should be made moderately firm, and water applied with care for some considerable time after repotting.

ONCIDIUMS thrive in a similar compost to Odontoglossums, and as they resent a sour, decayed compost, any that are in need of new material may have attention. The smaller kinds are best grown in shallow pans,

suspended from the roof, whilst the larger growers are more easily accommodated in pots on the stages. Most Oncidiums enjoy the temperature of the Intermediate house; but such species as O. Papilio, Kramerianum, Lanceanum, guttatum, and Cavendishianum do best in the Warm house.

ZYGOPETALUMS, as they pass out of bloom, may be repotted, should the compost be in a decomposed condition. The strong growing *Z.* Mackayi may have a compost of a substantial nature to root in. Fibrous loam, osmunda fibre, and sphagnum moss in equal proportions, cut up according to the size of the plants, and well mixed together, forms a suitable compost.

GENERAL REMARKS.—As dirty plants cannot thrive, and owing to the recent shortage of labour and other difficulties, cleanliness has not been so strictly observed as formerly, every effort should be made, before the busy season is upon us, to eradicate all those parasites which infest and suck out the life blood of our plants.

EULOPHIA MEGISTOPHYLLA, Rchb. f.—This interesting Comoro Island Orchid has just flowered with Messrs. Charlesworth & Co., Haywards Heath. The species was introduced by the late M. Louis Humblot, and described by Reichenbach in 1885 (*Gard. Chron.*, 1885, i. p. 787), probably from dried materials, though a plant afterwards flowered at the Jardin des Plantes, Paris, when a figure appeared (*Rev. Hort.*, 1887, p. 87, fig. 21). Reichenbach remarked that the species had probably the largest leaves in the whole affinity, though, as usual, he left us to guess what the dimensions may have been. Fortunately, however, there is a native leaf preserved at Kew, collected by M. Humblot himself, and this in the dried state measures 18 inches long by 7 inches broad. This leaf constitutes the entire specimen, but Messrs. Charlesworth have kindly spared the inflorescence and a smaller leaf for preservation at Kew. The inflorescence, which appeared at Paris, had three side branches; the present one has only a small side branch, bearing two flowers, while some three dozen others are borne by the main raceme, which is about ten inches long. The leaf of Messrs. Charlesworth's plant is considerably smaller than the wild one, which suggests that the plant is not yet fully developed. The origin of the present plant is not known, but the flowers are indistinguishable from those represented in the figure cited, so that the identity of the two may be assumed. The flowers are straw yellow, with four purple lines and a few streaks on the petals, and more numerous radiating ones on the side lobes of the lip, the front lobe of which is deeply bilobed, with a very short, recurved apex. The spur is green, very obtuse, and broader than long. The affinity of the species is with the West African E. Saundersiana, Rchb. f. and the Mascarene E. pulchra, Lindl.—R.A.R.

PHALÆNOPSIS AMABILIS.

THE enormous advance that has been made in cool Orchid growing during the last decade has pushed what are termed East Indian Orchids rather into the background; but what could be more beautiful than

FIG. 5. PHALÆNOPSIS AMABILIS.

a house of Phalænopsis amabilis in bloom, as in the annexed photograph, showing this beautiful Malayan Moth Orchid in the establishment of Messrs. Charlesworth & Co., at Haywards Heath. The plants indeed were a mass of bloom, and the pure white colour, relieved by a little deep yellow on the lip, gives an effect which can scarcely be rivalled in any other group; indeed

we cannot recall anything quite comparable with it. The species is found in Java, Borneo, and several other Malayan Islands, and has been known to science for about 170 years, having been described and figured by the Dutch botanist, Rumphius, as long ago as 1750, in the island of Amboina, under the name of Angræcum album majus. How it successively became Epidendrum amabile, Cymbidium amabile, Phalænopsis amabilis, P. grandiflora, and ultimately P. Rimestadiana, has already been told, and reads something like a comedy. It appears to have first flowered in cultivation in September, 1850, in the collection of J. H. Schröder, Esq., of Stratford Green, when it received a Silver Banksian Medal from the Royal Horticultural Society. Under suitable, Warm House, treatment it is one of the most beautiful Orchids in cultivation. We have seen an albino of the species, in which there are no traces of purple on the lip, and the scape is pure green, without any brown colour.

CYMBIDIUMS FROM BRISTOL.—A series of hybrid Cymbidiums has been sent from the collection of G. Hamilton Smith, Esq., Northside, Leigh Woods, Bristol, by Mr. W. E. Walker, which illustrates the improvements that are being effected by the use of the handsome Annam species, C. insigne, as a parent, and also the value of the hybrids as winter-blooming plants. C. Alexanderi (Veitchii × insigne), is represented by four beautiful flowers, one having blush-white sepals and petals, and the lip covered with the characteristic insigne crimson lines and spots. In McBean's variety, the sepals and petals are nearly white, and the red, confluent dotting is confined to the front half of the lip. A still finer form is quite similar in the markings, but the flower is tinged with blush, and there is a light yellow tinge on the side lobes of the lip. The fourth is a richly-coloured example of the var. roseum, with rose-coloured sepals and petals, and crimson markings on the front lobe of the lip and apex of the side lobes, the disc being unspotted. Forms of C. Gottianum (eburneum × insigne) and C. Schlegelii (insigne × Wiganianum) bear a general resemblance to each other, being blush-pink, with copious crimson markings on the lip, though the latter is superior, both in shape and colour. C. Sybil (eburneum × Pauwelsii) is a charming white, unspotted form, with light yellow keels, and C. Castor var. aureum (Woodhamsianum × insigne) has light yellow sepals and petals, with a flush of pink on the margins, and red spotting on the front of the lip. Lastly, we have C. Corona (Lowianum × Schlegelii), the green sepals and petals having a brownish suffusion up the centre, while the front of the lip has a zone of rich red-brown in front, and a central line, which characters recall C. Lowianum. Mr. Hamilton Smith specialises in Cymbidiums, and has a fine collection, including many of the rare species.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on November 4th, 1919, when there was a good display of Orchids, and the awards consisted of four Medals and four Awards of Merit.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), E. R. Ashton, W. J. Kaye, J. Charlesworth, A. McBean, Pantia Ralli, S. W. Flory, R. Brooman White, C. J. Lucas, J. Wilson Potter, Arthur Dye, F. J. Hanbury, and R. A. Rolfe.

AWARDS OF MERIT.

CATTLEYA ENID ALBA FAIRY QUEEN (Mossiæ Reineckeana × Warscewiczii Frau Melanie Beyrodt).—A charming variety, with broad, pure white sepals and petals, and the front of the lip veined with bright purple, the disc bearing some yellow lines. Exhibited by J. Joicey, Esq., The Hill, Witley (gr. Mr. J. Mackay).

CATTLEYA LADY LEON (Portia × Mrs. Pitt).—A bright and attractive hybrid, bearing a spike of four magenta-rose flowers with a chrome yellow disc to the lip. Exhibited by Sir Herbert Leon, Bart., Bletchley Park, Bucks (gr. Mr. W. W. Field).

LÆLIOCATTLEYA HONORIA ORCHIDHURST VAR. (C. Mantinii nobilor × Lc. Geo. Woodhams).—A large and brilliantly-coloured variety, having bright mauve-purple sepals and petals, a rich purple-crimson lip, with bright yellow veining on the disc, and an ivory white column. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM CRISPUM JOICEYI.—A large and beautiful white form, with very broad, fringed petals, and the lip with a large chestnut-red blotch in front of the yellow crest, and some purple lines on each side. Exhibited by J. Joicey, Esq.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), sent examples of blue-tinted Cattleyas, including C. Portia cœrulea, C. Ariel cœrulea, and C. Bowringiana lilacina, with examples of the yellow Spathoglottis Fortunei and zebrina.

T. D. Wren, Esq., The Poplars, Northampton (gr. Mr. Walker), sent two well-bloomed plants of Cypripedium Ellerdale Wren's var. (bingleyense × insigne Harefield Hall var.), a well-coloured form.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver-gilt Flora Medal for an excellent group, in which we noticed some fine, blotched

Odontoglossums, good examples of the xanthotes group, O. Phillipsianum aureum (eximium × luteopurpureum Vuylstekeanum), Odontioda Vuylstekeæ, and several others, Oncidioda Marjorie, two good Vanda cœrulea, the brilliant Sophrocattleya Doris, some excellent Cattleyas and Læliocattleyas, Epidendrum vitellinum autumnale, a few good Cypripediums, and numerous others.

Messrs. Stuart Low & Co., Jarvisbrook, received a Silver Flora Medal for a fine group, including examples of Vanda cœrulea, three charming Sophrocattleyas, Cattleya Eira (Thurgoodiana × labiata), with purplish mauve sepals and petals, and a rich purple lip, Læliocattleya Valda (Lc. Black Prince × C. General Pau), a fine thing, rosy lilac with some purple veining on the front lobe of the lip, and other good Cattleyas, Læliocattleyas, Brassocattleyas, Oncidiums and Odontoglossums.

Messes. Flory & Black, Slough, received a Silver Banksian Medal for a small group of blotched Odontoglossums, Sophrocattleya Venus (Sc. Doris × C. Venus), a fine dark scarlet flower, Cattleya Peter (Petersii × labiata), a fine hybrid of the labiata group, C. Œnone alba, Læliocattleya Merlin (C. labiata × Lc. Lucasiana), another fine thing, and several other good Cattleyas, Læliocattleyas, and Brassocattleyas.

Mr. C. F. Waters, Balcombe, received a Silver Flora Medal for a small group, including several good Cattleya Fabia, Water's var. being very richly coloured, Læliocattleya Honoria, Lc. Geo. Woodhams, and others, with a few Cypripediums.

Messrs. Hassall & Co., Southgate, sent Sophrocatlælia Thyone (Bc. Leemaniæ × Lc. Thyone), with yellow sepals and petals, aad a rose-purple lip, a well bloomed example of Sophrocattleya Faboris, and Læliocattleya Soulange.

At a meeting held on November 18th the exhibits were fewer in number, and the awards consisted of two Medals, one First-class Certificate, and one Award of Merit.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), W. Bolton, Arthur Dye, R. Brooman White, Sir Harry J. Veitch, S. W. Flory, W. J. Kaye, R. A. Rolfe, G. Wilson, Stuart H. Low, R. G. Thwaites, Pantia Ralli, E. R. Ashton, F. J. Hanbury, A. McBean, J. Charlesworth, Walter Cobb, and J. E. Shill.

FIRST-CLASS CERTIFICATE.

LÆLIOCATTLEYA SCHRŒDERÆ MAGNIFICA (Lc. bella alba × C. Maggie Raphael alba).—A very beautiful variety, having broad pure white sepals and petals, and a rich violet-purple lip, with a bright yellow disc, and some purple at the base. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

AWARD OF MERIT.

CYPRIPEDIUM DIXMUDE (Leeanum × Thalia).—A very fine hybrid of excellent shape, the ample dorsal being white, with rows of clear purple spots, and a small green base, the petals and lip mahogany red with yellow margin. Exhibited by Baron Bruno Schröder.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), sent examples of the blue-tinted Cattleya Ariel cœrulea, C. Alcimeda cœrulea, and C. Portia cœrulea, the latter with a six-flowered inflorescence.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Gover), sent Cattleya Snowflake, Odontioda Livinia (Odm. amabile × Oda. Thwaitesii), a promising thing, having a large chocolate-purple flower, with rose-purple markings on the lip, and O. Saturn (Odm. Argon (Edwardii × amabile) × Oda. Sanderæ), with chocolate-purple flowers and a yellow crest to the lip.

Messrs. Stuart Low & Co., Jarvisbrook, received a Silver Flora Medal for a fine group, including good examples of Brassocattleya Maroniæ and Leemaniæ, Odontoglossum eximium xanthotes, the violet-blue Dendrobium Victoria Regina, the rare Lælia Perrinii nivea, Læliocattleya Pathfinder (C. Hardyana × Lc. eximia), with three fine flowers, Lc. luminosa aurea, a fine Sophrocattleya Blackii with four flowers, Cattleya Snowdon (Suzanne Hye × labiata alba), Maxillaria rufescens, and others.

Messrs. J. & A. McBean, Cooksbridge, received a Silver Flora Medal for a good group, including eight plants of the variable and beautiful Læliocattleya Linda (Lc. Arachne × C. Dowiana aurea), Odontocidium Nanette (Oncidium incurvum × Odm. Harryanum), Oncidioda Cora (C. Nœtzliana × Oncidium Schlimii), Odontoglossum triumphosum, Oncidium incurvum album, Cymbidiums and Cypripediums, the latter including a good yellow insigne derived from the varieties Sanderæ and Laura Kimball.

Messrs. Flory & Black, Slough, showed a fine Brassocattleya Nestor, Bc. Gen. Diaz, Bc. Juliet var. Witchery (Bc. Leemaniæ × C. chocoensis alba), white with a light yellow disc to the lip, and Sophrocatlælia Eros (Lc. elegans × S. grandiflora), with bright scarlet flowers.

The last meeting of the year, held on December 2nd, brought together a good display of Orchids, and the awards consisted of six Medals (one of them to a fine group of paintings), one First-class Certificate, and two Awards of Merit.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), W. Bolton, R. Brooman White, C. J. Lucas, H. G. Alexander, F. K. Sander, J. E. Shill, W. H. Hatcher, S. W. Flory, C. H. Curtis, J. Cypher, A. McBean, Pantia Ralli, W. J. Kaye, Stuart H. Low, R. A. Rolfe, F. J. Hanbury, and Sir Harry J. Veitch.

FIRST-CLASS CERTIFICATE.

LÆLIOCATTLEYA BELLATRIX (C. Fabia alba × Lc. bella alba).—A very charming variety, with broad white sepals and petals of excellent shape and substance, and the lip deep violet-purple with some yellow veining in the throat. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

AWARDS OF MERIT.

BRASSOCATTLEYA BENVENUTO (C. Maggie Raphael alba × Bc. Ilene).—A promising hybrid, having white sepals and petals, and a pale lilac lip with some light yellow in the throat. Exhibited by Baron Bruno Schröder.

ODONTOGLOSSUM ASION (Solon × Aquitania).—A handsome hybrid, with very round flowers of excellent substance, the inner two-thirds of the segments rich claret-red, and the apex and margins white. Exhibited by W. R. Fasey, Esq., The Oaks, Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour).

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), staged a charming little group of blue-tinted Cattleyas, including C. Ariel (Gaskelliana cœrulea × Bowringiana violacea), several well-flowered C. Portia cœrulea, tastefully arranged with white Odontoglossum crispum, Calanthe Harrisii, a good Cœlogyne barbata, and maiden-hair ferns, a Silver Flora Medal being awarded.

The Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. J. T. Barker), sent Brassocattleya speciosa var. Hon. Mary Cadogan (Bc. Maronii × C. Schrœderæ alba), a charming pale primrose flower, with a yellow disc to the lip and some purple markings behind.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a fine group, including a good series of blotched Odontoglossums, among them O. Carola (Harryano-triumphans × Scottianum), a fine yellow hybrid, heavily blotched with chocolate-purple, several brilliant Odontiodas, Læliocattleya luminosa aurea, Lc. Athene (callistoglossa × St. Gothard), Brassocattleya Sofrano (Bc. Leemaniæ × C. iridescens), Odontonia Langowoyi, Cypripedium Thias (Desdemona × Beeckmanii), a promising hybrid, and numerous other good things.

Messrs. Cypher & Sons, Cheltenham, received a Silver Flora Medal for an excellent group of Cypripediums, including several forms of C. Oberon, while C. Verdun, Goliath, Madame Fevrier, Shogun, King of the Belgians, and C. Muriel Hollington (insigne × niveum) were also noteworthy.

Messrs. J. & A. McBean, Cooksbridge, received a Silver Flora Medal for a fine group, including several good forms of Læliocattleya Linda, Cattleya Annette, C. Bellona alba, several good Cymbidiums, noteworthy

among them being C. Doris majestica with a spike of eighteen flowers, winter-blooming Cypripediums, and others.

Messrs. Sanders, St. Albans, received a Silver Banksian Medal for an interesting and varied group, containing a fine plant of Cœlogyne barbata, Arachnanthe Cathcartii, the rare and pretty Vanda luzonica, Cattleya Maggie Raphael, Odontoglossum Columbia (Magali Sander × splendidum), Cypripedium Elfin (Moonbeam × insigne Sanderianum), yellow with some spots on the dorsal sepal, C. Peacock (Baron Schröder × Hera), and several others.

Messrs. Hugh Low & Co., Jarvisbrook, showed Cypripedium Tracyanum var. Purity, a light-coloured form, with a large white area on the dorsal sepal.

Miss M. Waters Anson, Blyth Villa, Parkstone, Dorset, was awarded a Silver-gilt Flora Medal for a beautiful series of paintings of certificated Orchids from the collections of Sir George Holford and Pantia Ralli, Esq.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on November 5th, 1919, the members of Committee present were: R. Ashworth, Esq. (in the Chair), Messrs. A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, J. Howes, A. J. Keeling, D. McLeod, Dr. Paul, E. W. Thompson, J. Thrower, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATE.

Lælia pumila alba Haddon House var., from P. Smith, Esq.

AWARDS OF MERIT.

Læliocattleya Honoria var. The Shah, Cattleya Mrs. Pitt var. The Pearl, and Dendrobium superbiens, from Capt. W. Horridge.

Cattleya Pittportia var. Lady Leon, from Sir H. Leon, Bart.

CULTURAL CERTIFICATES.

To Mr. A. Coningsby, for Dendrobium Goldiei and D. superbiens.

To Mr. A. Burns, for Pleione præcox.

To Mr. J. Howes, for Brassocattleya Penelope.

FIRST-CLASS BOTANICAL CERTIFICATE.

Dendrobium Goldiei and Oncidium bracteatum, from Capt. W. Horridge.

A Large Silver Medal was awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), for a fine representative group, containing Cypripediums in variety, Cœlogyne Mooreana, and various other showy Orchids of the season.

A Silver Medal was awarded to Capt. W. Horridge, Bury (gr. Mr. Coningsby), for a group of choice Cypripediums, Cattleyas, Dendrobium Phalænopsis Statterianum, and various other good things.

A Silver Medal was awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for the handsome Brassocattleya Penelope, which had already received a First-class Certificate.

Interesting exhibits also came from Sir Herbert Leon, Bart., Bletchley Park, Bucks. (gr. Mr. W. W. Field), and P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson), several of which are represented in the List of Awards.

At the meeting held on November 20th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Cypher, D. McLeod, A. Keeling, Dr. F. T. Paul, E. Tack, E. W. Thompson, J. Thrower, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cattleya Albion var. formosa (Suzanne Hye × O'Brieniana alba), Cypripedium Samuel Gratrix (Germaine Opoix × Royal George), and C. Royal Oak (Dreadnought × Reginald Young), from S. Gratrix, Esq.

Lycaste Imschootiana var. Chorltonii, from Mrs. Gratrix.

Odontioda Carola (Odm. L'Empereur × Oda. Diana), a fine thing, from P. Smith, Esq.

AWARDS OF MERIT.

Cattleya Dragon and C. labiata var. Enchantress, from S. Gratrix, Esq.

Cypripedium Hestia (Cyclops × Lady Dillon), from Mrs. W. R. Lee.

Odontoglossum Persephone Haddon House var. (Adrianæ × Pescatorei), from P. Smith, Esq.

Cypripedium Charlesworthii Sir Cloudeslee var., from Dr. F. T. Paul.

FIRST-CLASS AWARD OF APPRECIATION.

Cypripedium Charmion (Rd. Ashworth × Alcibiades Illustrious) from Mrs. W. R. Lee.

CULTURAL CERTIFICATE.

To Mr. J. Howes for Læliocattleya luminosa var. Mary Amelia Gratrix.

Silver-gilt Medals were awarded to Mrs. Bruce and Miss Wrigley, Bridge Hall, Bury (gr. Mr. A. Burns), and to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for very fine groups of choice Cypripediums, with a few other things.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a fine choice group of Cypripediums, Odontioda Charlesworthii, Dendrochilum Cobbianum, Zygopetalum Ballii, and others.

A Silver Medal was also awarded to the handsome Cypripedium Samuel Gratrix, which appears in the list of First Class Certificates.

Interesting exhibits were also staged by Mrs. Gratrix, Whalley Range (gr. Mr. J. Howes); Mrs. W. R. Lee, Heywood (gr. Mr. C. Branch);

Dr. F. T. Paul, Caddy, Cheshire; P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Messrs. A. J. Keeling & Sons, Bradford, and Mr. D. McLeod, Chorlton-cum-Hardy, several of which figure in the above list of Awards.

The Secretary regrets to report the death of John Hartley, Esq., of Morley, near Leeds, a comparatively new but enthusiastic member of the Society.

At the meeting held on December 4th, the members of the Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Burns, D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. Keeling, D. McLeod, F. K. Sander, W. Shackleton, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Victor Hugo var. King John (Becktoniæ × Lathamianum), from B. J. Beckton, Esq.

Brassocattleya Enchantress (Bc. Digbyano-Mendelii × C. Fabia), from S. Gratrix, Esq.

Odontoglossum Col. Leith, Haddon House var. (Rossii majus × Uroskinneri), from P. Smith, Esq.

AWARDS OF MERIT.

Vanda cœrulea var. Bluebeard and Cypripedium Moonbeam var. W. G. Groves, from Mrs. Bruce and Miss Wrigley.

Cypripedium Cyclops var. Renown, from S. Gratrix, Esq.

Læliocattleya Ettrick, Bletchley Park var., from Sir H. Leon, Bart.

Cypripedium Frenchay (Lawrebel × bellatulum), from A. J. Keeling & Sons.

FIRST-CLASS AWARDS OF APPRECIATION.

Cypripedium Angela (niveum × Farrieanum), from B. J. Beckton, Esq.

Brassocattleya Princess Mary var. exquisita, from S. Gratrix, Esq.

FIRST-CLASS BOTANICAL CERTIFICATE.

Catasetum viridiflavum, from Sir. H. Leon, Bart.

CULTURAL CERTIFICATES:

To Mr. A. Burns, for Vanda cœrulea and Platyclinis uncata.

Large Silver Medals were awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), for a fine group of Vanda cœrulea and choice Cypripediums, and to Sir Herbert Leon, Bart., Bletchley Park, Bucks. (gr. Mr. W. W. Field), for a fine general group.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a fine group of Cypripediums, with Epidendrum vitellinum autumnale, Masdevallia tovarensis and bockingensis, and a few good Odontoglossums.

S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes); B. J. Beckton, Esq., Irlam-o'th-Height (gr. Mr. W. A. Stewart); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Miss Hartley, Morley; Messrs. A. J. Keeling & Sons, Bradford; and Messrs. J. Cowan & Co., Garston, also staged a number of interesting exhibits, several of which appear in the above List of Awards.

At the meeting held on December 13th, the Members of the Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Cypher, J. Howes, A. Keeling, D. McLeod, Dr. F. T. Paul, E. Tack, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Our Prince (Tommy Curte × Goliath), Odontoglossum crispum Yuletide, and Cattleya Moira alba, from S. Gratrix, Esq.

Cypripedium Cyril Lee (Thisbe × Idina), from Mrs. W. R. Lee.

AWARDS OF MERIT.

Cypripedium nanum var. W. A. Stewart, C. Christopher var. Præsigne, Calanthe Papilio and C. burfordensis, from B. J. Beckton, Esq.

Cypripedium Draco Lee's var., from Mrs. W. R. Lee.

Cattleya Fabia atropurpurea, and Cypripedium chrysotoxum striatum, from S. Gratrix, Esq.

Cypripedium Orva (King George × Germaine Opoix), and C. Sanactæus var. Golden Dawn, from P. Smith, Esq.

Cypripedium Tigris (Earl Tankerville × Mrs. Mostyn), from Messrs. Keeling & Sons.

CULTURAL CERTIFICATES.

To Mr. A. Burns, for Vanda cœrulea, Cypripedium Alcibiades superbum, C. Leeanum Chardwar var., and C. Madame Jules Hye.

To Mr. W. A. Stewart, for Calanthe Wm. Murray, and C. Bryan vars., superba and punctulata.

A Gold Medal was awarded to S. Gratrix, Esq. (gr. Mr. J. Howes) for a splendid group of Cypripediums, with a few good Odontoglossums, Odontiodas, Cattleyas, and Brassocattleya Ivernia.

Silver Medals were awarded to Mrs. Bruce and Miss Wrigley (gr. Mr. A. Burns); B. J. Beckton, Esq., Irlam-o'th-Height (gr. Mr. W. A. Stewart); and Capt. W. Horridge, Bury (gr. Mr. A. Coningsby), for fine groups of winter-flowering Orchids, in all of which Cypripediums were well represented, while Mr. Beckton's group contained a series of beautiful Calanthes.

A Silver Medal and Special Vote of Thanks were awarded to Messrs. Cypher & Sons, Cheltenham, for a beautiful collection of cut Cypripediums,

artistically arranged in moss, and giving a very pleasing effect. The group contained the leading varieties of the winter-blooming section.

Interesting exhibits were also contributed by Mrs. W. R. Lee, Heywood (gr. Mr. C. Branch); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); R. Ashworth, Esq., Newchurch (gr. Mr. Hough): Messrs. A. J. Keeling & Sons, Bradford; and Mr. D. McLeod, Chorlton-cum-Hardy, several of them being included in the above List of Awards.

MALAXIS PALUDOSA IN HAMPSHIRE.

DURING the meeting of the British Association at Bournemouth in September last we had the pleasure of seeing the rare bog Orchid, Malaxis paludosa, alive, plants having been found in a locality where it, fortunately, still flourishes. Probably the smallest of British Orchids, it is an inconspicuous plant, and this quality is likely to secure its preservation, at least while the general conditions of the locality remain undisturbed. No one would pick it as a decorative plant; few would even notice it unless they were in search of it, for it bears just a slender spike, some three to six inches high, with small, pale green flowers, and two or three small leaves at the base, yet the latter constitute one of its most remarkable features. Sir James E. Smith spoke of the leaves as roughish about the extremity, often somewhat fringed, so that this plant may perhaps have given rise to the report of a hairy-leaved Orchis (*Engl. Fl.*, iv. p. 48). The significance of this fringed appearance of the leaves was explained by the Rev. J. S. Henslow as long ago as 1829 (*Lond. Mag. Nat. Hist.*, i. pp. 441, 442, fig. 197), and the figure shows well the character described.

"This plant," he remarks, "occurs in great plenty in the bogs on Gamlingay Heath, Cambridgeshire, where I had an opportunity of examining it a few days ago, and ascertained the cause of the fringed appearance of the leaf alluded to by Smith. Every specimen I gathered exhibited this in a greater or less degree, and it required only the assistance of a common lens to show me that it was occasioned by the numerous little bulbous germs, sprouting from the edge, and towards the apex of the leaf. They were of the same colour as the leaves, green on those which were more exposed to the light, and quite white on those which were lowest on the stem, and half buried in peat and moss. Some of these germs were so far advanced as to have put forth the rudiments of two or three leaves, others less so. These plants often occur in little clusters of half a dozen or more close together, which may be accounted for by several of the germs arriving at perfection, whilst the rest perish. Otherwise, so far as I have observed, the plant is generally continued by a single offset, and three or

four of the old decayed bulbs may be found, one below the other among the peat, and still attached to the living stem."

The character described was well shown in the plants found near Bournemouth, and is quite obviously a common method of propagation by the species. Should anyone care to grow such an interesting plant it would probably suffice to obtain a clump of living sphagnum and keep it always in a healthy growing condition, for Babington remarks that it grows rather as an epiphyte upon the moss than merely amongst it. R.A.R.

SACCOLABIUM MINIATUM.

A SPIKE and leaf of a Saccolabium from the Philippines has been sent by our old friend Mr. G. I'Anson, formerly with Messrs. Hugh Low & Co., now gardener to Mr. A. C. Burrage, Boston, U.S.A. Mr. I'Anson remarks that the plant is very free-flowering, and its buff-yellow flowers somewhat recall S. curvifolium. It agrees with S. miniatum, Lindl., an imperfectly known species, as may be seen by a previous note (*O.R.*, iv. p. 178). Since then a good deal of material has come to hand. Two different specimens of a Saccolabium collected in the island of Luzon by Mr. A. Loher, were sent to Kew, one of them being accompanied by a sketch, and these proved to be S. miniatum. Then came another collected by Mr. E. B. Copeland on rocky cliffs at Malog, in the Davao district of the island of Mindanao. This fully confirms the Philippine habitat which was originally ascribed to the variety citrinum, Rchb. f., though it was at first considered doubtful. Lindley's original habitat, Java, has also been questioned, but is now confirmed, for there are now records of its occurrence there in three different stations (*J. J. Smith, Orch. Jav.*, p. 646). It has also been found in several stations in the Malay Peninsula (*Ridl. Fl. Mal. Penins.* i. p. 170), and there are specimens at Kew from the Langkawi Islands, off the West Coast, and from the provinces of Perlis and Setul. An extension of its distribution to Siam is also mentioned. These facts show how widely the species must be diffused, and how imperfect has been our knowledge. It is a beautiful little plant when well grown, and there are two pictures by Mr. Day (*Orch. Draw.*, xxii. t. 83, and xlv. t. 3), the dates being October, 1877, and April, 1885. Mr. Day specially records it as a rare plant, which he first obtained from Messrs. Rollisson, in 1858, and afterwards he bought another from Messrs. Veitch. Mr. Day also painted the variety citrinum, in August, 1885 (*Orch. Draw.*, xlv. t. 79), the plant having been purchased from Messrs. Hugh Low & Co., a few days earlier. In no case did Mr. Day obtain the habitat. As regards this variety, Reichenbach recorded that he first obtained it in December, 1867, from

Mr. Wentworth Buller, with the record that it came from the Philippines. Of this Reichenbach records that he was sceptical at the time, but afterwards regarded it as correct, which is probably a tribute to his knowledge that Roebelen, whose dried specimen had been forwarded to him by M. Kienast Zolly, of Zurich, had been collecting in the Philippines; for the fact is not stated. Unless accompanied by some memo. as to colour, the evidence that the dried specimen belonged to var. citrinum is not complete. The latter we regard as simply a colour variation, and in any case Mr. Ridley also records it from the Malay Peninsula. It is interesting to be able to add so much to the history of this pretty little species, which has become very rare in cultivation. R.A.R.

PLEIONE HUMILIS AND ITS VARIETIES.

TWO forms of this attractive winter-blooming Pleione have long been known in cultivation, one having purple markings, the other brown markings on the lip. Both are again in bloom in the collection of H. J. Elwes, Esq., Colesborne Park, Glos., and the question has again been raised what is their relation to each other. As long ago as 1895 we received flowers from the same source, and suggested that the brown colour, of what was known as var. tricolor, resulted from an admixture of yellow with the purple (*O.R.*, iv. p. 66). This variety was described in 1880 by Reichenbach (*Gard. Chron.*, 1880, i. p. 394), from materials sent by Mr. Wm. Bull, Chelsea, and was afterwards figured (*Orch. Alb.*, iii. t. 102). Its origin was not stated, but we have now been able to trace it. It was figured in April, 1883, by Mr. John Day (*Orch. Draw.*, xxxii. t. 89), when Mr. Day, in alluding to its supposed appearance in 1880, remarked: "I might have sent him flowers some years sooner, for I had it in bloom here in 1874. I saw it growing on trees near Darjeeling, at 10,000ft. altitude, in flower in February, with snow lying about in places near it, and sent home some bulbs by post." This may represent the source of Mr. Bull's plant, for we know that he was in constant touch with Mr. Day. The latter had, in January, 1867, figured what has been regarded as typical P. humilis (*Orch. Draw.*, xi. t. 67), the lines on the lip in this case being clear purple, without trace of yellow, and of this Mr. Day remarked: "Received from Mr. Wentworth Buller, in 1865; imported by him from Assam." Of this, curiously enough, we can only find a second unpublished drawing, namely, one from Mrs. Ross, of Florence. The others have brown markings on the lip, as in the so-called var. tricolor, which is actually the typical form. The species was originally described and figured in 1805, under the name of Epidendrum humile, Smith (*Exot. Bot.*, ii. t. 98), from

Upper Nepal. This figure shows brown markings on the lip, as also do *Bot. Mag.*, t. 5674, *Paxt. Fl. Gard.*, ii. t. 51, *King & Pantl. Orch. Sikkim*, t. 123, and an original drawing from Wallich. The one with pure purple markings on the lip is the more beautiful, and as it is without a name we suggest that of P. humilis var. pulchella. There is one other variety, called var. albata, Rchb. f. (*Gard. Chron.*, 1888, i. p. 392), which is said to have two orange blotches on the lip, though the veins are light mauve purple. The species is rather widely diffused, occuring in Nepal, Sikkim, Bhotan, Khasia, Manipur, and Burma. Its history has already been given (*O.R.*, xi. p. 291), also that of a curious abnormal form having a tuft of hair-like appendages at the apex of the pseudobulb, which replaces the leaf (xxv. p. 4). Concerning the latter, we have since found that Wallich's original drawing shows two of these curious developments, in addition to three normal flowers. This removes the last element of doubt as to the species which produces them. According to King and Pantling, Pleione humilis is known to the European inhabitants of Darjeeling as Himalayan Crocus.

R.A.R.

ORCHID NOTES AND NEWS.

THE Royal Horticultural Society completes its programme for the Session with meetings on January 13th and 27th. The dates of the February meetings are the 10th and 24th. They are held at the Royal Horticultural Hall, Westminster, and the Orchid Committee meets at 11.45 a.m. The two following meetings are fixed for March 9th and 23rd.

The corresponding meetings of the Manchester and North of England Orchid Society are fixed for January 8th and 22nd, and February 5th and 19th. They are held at the Coal Exchange, Manchester, and the Committee meets at 12 o'clock noon, the exhibits being open to inspection from 1 to 4 p.m. The dates of the two following meetings are March 4th and 18th.

The R.H.S. arrangements for the current year include fortnightly meetings at the Royal Horticultural Hall, Westminster, except during May, August and October, when, owing to special circumstances, there will be only a single meeting, and November, when there will be three meetings. The Spring Show will be held at Chelsea on June 1st, 2nd and 3rd, and the Summer Show will be a great provincial meeting at Cardiff, on July 6th, 7th, and 8th, the Society having accepted the invitation of the Lord Mayor of Cardiff, and the Cardiff and County Horticultural Society to hold a meeting and exhibition there. A special schedule of these meetings will be issued. The second May meeting is omitted on account

of the Spring Show at Chelsea a week later, and that of August 10th because the Hall will be closed for redecoration. The meeting of October 5th is the usual show of British grown fruits, and the announcement that the Orchid Committee will not meet, and that fruit only may be shown, is not in accordance with the facilities promised in September last, and announced at pp. 195, 196 of our last issue.

In the Report of the Council for the year, we note with regret the resignation of Sir Harry J. Veitch, V.M.H., owing to stress of business and increasing years. His services, however, will not be lost, for he has been nominated as a Vice President of the Society. The Rev. W. Wilks, who has been Secretary of the Society since 1888, has resigned, but has been nominated a member of the Council. Mr. W. R. Dykes, M.A., has been appointed Secretary. Good progress has been made with the revision of Pritzel's Index, and it is hoped that sufficient funds may be forthcoming to commence printing next year. It is estimated that a further sum of £2500, in addition to £1200 already subscribed, will be required. The Council thanks the Society's Committees for their services during the year, under somewhat depressing circumstances. We note with satisfaction a substantial advance in the Society's membership, the numerical increase being 1306, and the additional income £1873 4s. 0d., which we may accept as an augury of gradually improving conditions. It may be added that the Orchid Committee has been re-elected for the coming year.

BRASSOCATTLEYA MARS.—Early last November I flowered a plant raised here from seed and labelled Brassocattleya Mars. It was a very beautiful flower, with fine broad segments, canary yellow in colour, with deep yolk yellow on the lip. It was quite different from any other that had flowered from the same pod, not only on account of its much finer shape, and unusual flatness, but the lip was without fringe, except for a cut, which might be a trace of it. Naturally, this made us doubtful whether it was a Brassavola Digbyana hybrid at all, or whether a stray seedling had not been pricked off under the same number. As a means of testing this, Mrs. Thwaites fertilised the flower with pollen of Cattleya Bellona, with the object of seeing from the position of the pod below the column whether there was any Digbyana "blood" in it. Considering that the pod which formed contains only one-eighth Digbyana, I think that its position below the column proves the plant to be a form of Brassocattleya Mars. I enclose the pod, which was cut off when it had served its purpose, and I should like your opinion as to whether you can trace the influence of B. Digbyana.—R. G. THWAITES.

There is a shortened but unmistakeable beak to the pod, and a glaucous

surface, both characters derived from B. Digbyana, which is entirely confirmatory of the parentage. The absence of the fringe is not surprising, considering how much it is reduced in a few other parallel cases. It is usually so much reduced that we have suggested recrossing with the Brassavola, in spite of its narrow petals and pallid colour. Intermediateness of character is an almost invariable quality of hybrid Orchids, though there are cases of characters being difficult to trace. The fact is, characters can be, and are, subdivided, and are sometimes present in the offspring as mere traces. We mention this, because some time ago we received a criticism that the argument about proportions was not sound, characters being either present or absent. The objection was based on Mendel's experiments with peas, which we have shown to be a thoroughly exceptional group; in any case it is not a fact.—R.A.R.

BULBOPHYLLUM DICHROMUM, Rolfe.—Another plant of this striking Bulbophyllum has appeared. The original bloomed at the Royal Botanic Gardens, Glasnevin, in February, 1907, and was shortly afterwards described (*Kew Bull.*, 1907, p. 128), a figure also being given in the *Botanical Magazine* (t. 8160). The flowers are large and striking, and are borne in a lax erect raceme, the dorsal sepal and united lateral sepals being bright yellow, and the three-lobed lip purple, with a pair of acute side lobes, as in B. fuscopurpureum, Wight, to which it is nearly allied, though very different in colour. The Kew plant, whose identity was not known until it produced a couple of fine racemes, is believed to have been sent by M. Roebelen, from Bangkok, with a few other Siamese Orchids.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

C.H.L.—Many thanks. Such a mass of Miltonia Schrœderiana we have never seen, and regret that the photograph is unsuitable for reproduction.

Photograph received, with thanks.—E.D.B. Next month.

C.W.P.—Flowers duly received, with thanks.

Odonto.—The fungus question was fully discussed at pp. 4-7, 29-32 of our twenty-sixth volume. We believe that the recipe there given will serve for making the nutrient solution used in germinating the seeds in a sterilised tube without the fungi. The process we believe to be otherwise similar.

W.W.B.—Flowers duly received; kindly indicate name or parentage.

Beginner.—The Sophronitis would succeed better in the Intermediate house during the winter. There are many Cool Orchids of which the same may be said. The temperature probably falls lower in the night than is sometimes realised.

The Orchid Review

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ORCHIDS AT THE BRITISH ASSOCIATION.

AT the meeting of the British Association held at Bournemouth in September last a paper was read by Col. M. J. Godfery, F.L.S., on Orchids of Hants and Dorset, being illustrated by lantern slides, and a beautiful series of forty-four paintings by Mrs. Godfery. The lecturer remarked that Hants and Dorset were rich in Orchids, among the rarer ones being Malaxis paludosa, Neottia Nidus-avis, and Spiranthes æstivalis, the latter remarkable for its extreme rarity in Britain, and one of its two stations being in the New Forest.

Gymnadenia conopsea, he remarked, makes a grand show on the chalk downs near Winchester, while a brightly coloured robust form, possibly var. densiflora, Dietr., grows on wet, slipped ground in the Isle of Wight, in company with Epipactis palustris, an example of a limestone species flourishing in marshy ground.

The marsh Orchids formed a particularly difficult group, the species being locally abundant, frequently with Orchis maculata in the immediate vicinity, and were sufficiently similar for humble bees to pass from one species to another indiscriminately, the consequence being that natural hybrids were frequent, but up to quite recent times all were regarded as members of one variable species, to which the name of O. latifolia was applied. There was still some doubt as to what the latter was, for after the separation of O. incarnata, and another green-leaved form which Mr. Druce had called O. prætermissa; there still remained a third form, which was locally abundant, and which, whatever its status specifically, could be at once recognised by the veriest tyro by its conspicuously spotted leaves, and of which the spots were often ring-like in character, with a more or less green centre. It was too common and too uniform to be a hybrid, and was probably the plant known as O. latifolia on the Continent.

O. maculata was a puzzling species, for there was another plant that was first separated from it by the Rev. E. F. Linton, in his *Flora of Bournemouth*, under the name of O. ericetorum, and its status had not yet been definitely decided, though it had been observed that the two usually

occupied distinct areas, O. ericetorum being essentially a heath plant, and usually easily separated.

The hybrids formed a particularly interesting lot, and were shown in a series of beautiful paintings. Col. Godfery gave details of those met with by himself, and also those enumerated in the Reports of the Winchester College Natural History Society (details of which may be found at pp. 142-3, 169-172 of our last volume). Concerning the hybrid between Orchis latifolia and Cœloglossum viride, he remarked that it had been found nowhere else in Britain, and it owed its existence to the fortunate accident that the former, an essentially marsh Orchid, grows high and dry on the chalk downs near Winchester, where the Cœloglossum is plentiful, the two plants, rather widely separated in their natural habitats, thus coming into contact.

Col. Godfery also gave some information about fertilisation by insects, a subject respecting which there is room for further observations. His concluding note may be given verbatim, as we have not met with the information before.

"Mr. Burton, of Longner Hall, Salop, tells me that while sitting in his glasshouse he saw a fly, Platychirus manicatus, visiting Aceras, and depositing eggs among aphides on the flowers. He watched to see whether they removed pollinia, and in every case found pollinia on their heads. A number of seed capsules were produced, and later he found larvæ of Platychirus energetically destroying the aphides. This curious case of indirect fertilisation may possibly explain the visits of Sarcophaga carnosa, a fly which frequents decaying animal matter, to the flowers of Epipactis palustris, which so puzzled Darwin.

ANŒCTOCHILUS REINWARDTII, Blume.—The Anœctochili are grown as ornamental-leaved plants, and are not often seen in bloom, though it is at this stage that their identity can be ascertained. An interesting plant, bearing the name of A. setaceus var. inornatus, has again thrown up a spike at Kew, and as an obviously different plant, also in bloom, was labelled A. setaceus, it became necessary to compare them with authentically-named specimens. The result shows a curious case of confusion. A plant was figured in the *Botanical Magazine* in 1860 (t. 5280), under the name of A. setaceus var. inornatus, Hook., the name indicating a difference from the ordinary state of the plant, in which the upper surface of the leaves bears a beautiful golden network. The text states that, "In a valuable case of plants lately received from the Botanic Garden of Java, was the present remarkable variety, in which the leaves, though of a rich coppery hue and velvety character, are wholly destitute of reticulations." The varietal name was obviously given in reference to this character, but it is a case of

confusion, for the plant agrees with A. Reinwardtii, Blume, described and figured two years previously (*Orch. Archip. Ind.*, p. 28. t. 12, fig. 1), as a native of Java. A. setaceus, Blume, the other Javan species, which is also figured on the same plate, differs in its elegantly reticulated leaves and in floral structure. This dates from 1825 (*Blume Bijidr.* p. 412, fig. 14), and has also not escaped confusion, for Lindley referred to it a Ceylon species, which he figured (*Bot. Reg.*, t. 2010), and this Blume afterwards described as A. regalis (*Orch. Archip. Ind.*, p. 47, t. 19, fig. B). Lindley's mistake was repeated in *Bot. Mag.*, t. 4123, this figure also representing the Ceylon plant, which is described as one of the most beautiful of all plants in the hue and marking of its leaves, not to be imitated by art, their colour being a rich velvety green, tinged with copper, and over that laid an exquisite golden network. It is said to be a native of damp, shady woods in Ceylon, Amboyna, and Java, "and if, as I think there can be no doubt, the Chrysobaphrus Roxburghii of Wallich be the same, also of Sylhet and Nepal." But the latter represents a fourth species, A. Roxburghii, Lindl., which was in bloom at Kew at the same time as A. Reinwardtii, though not having its correct name. The Amboyna plant has been referred to A. Reinwardtii, but its identity is doubtful, to say the very least, because of the golden veins said to be on the leaves. Rumphius remarks that this is known to the natives of Amboyna as *Daun Petola*, or Petola leaf, on account of its resemblance to the Petola, a precious silken vestment of many gaudy colours. Materials are wanting to decide the point, but we may recall that the well known Macodes Petola, Lindl., owes its specific name to the same character. R.A.R.

THE SOPHROCATLÆLIAS.

IT is remarkable how rapidly the hybrid genus Sophrocatlælia is growing. When the *Orchid Stud-Book* was published four only were known, but since then there have been over eighty additions. The majority have been reported in our pages as exhibited, and we now take the opportunity of giving a number of others. In some cases they have been recorded under the name of Sophro-Lælio-Cattleya, which, however, is not in accordance with the Rules of Nomenclature of the Brussels Congress. These, after confirming the R.H.S. Rules for the nomenclature of multigeneric hybrids, make exceptions in the case of Brassocatlælia and Sophrocatlælia as being names already in use. There is also a provision that such names should be written as a single word, without hyphens and with only the initial capital (as we have always written it). The genus was established to include all hybrids between the three genera, Sophronitis, Cattleya, and Lælia, a

combination which can be effected in several different ways, as the following list will show. Many of them are very charming little plants, in which the habit and brilliant colour of the original Sophronitis grandiflora are much in evidence, while others have more of the Cattleya shape and colour.

SCL. DELIA (Lc. Gottoiana × Sc. Cleopatra), *Charlesw. Cat.*, 1914, p. 88.—Charlesworth & Co., 1913.

SCL. DIANA (C. Aclandiæ × Sl. Gratrixiæ).—S.-L.-C. Diana, *G.C.*, 1915, ii. p. 330.—H. S. Goodson, Nov., 1915.

SCL. DIDO (C. Trianæ × Sl. heatonensis), *Charlesw. Cat.*, 1912, p. 82.—Charlesworth & Co., 1911.

SCL. ELECTRA (C. labiata × Sl. heatonensis), *Charlesw. Cat.*, 1914, p. 88.—Charlesworth & Co., 1913.

SCL. ERIATA (C. labiata × Scl. Eros). S.-L.-C. Eriata, *G.C.*, 1917, i. p. 95.—Duke of Marlborough, Feb., 1917.

SCL. FALCON (Lc. Aureole × S. grandiflora). S.-L.-C. Falcon, *G.C.*, 1917, ii. p. 85.—Sir G. L. Holford, Aug., 1917.

SCL. GEM (Lc. warnhamiensis × S. grandiflora). S.-L.-C. Gem, *G.C.*, 1914, i. p. 87.—F. Wellesley, Jan., 1914.

SCL. HEBE (Lc. Haroldiana × Sl. Gratrixiæ), *Charlesw. Cat.*, 1914, p. 88.—Charlesworth & Co., 1913.

SCL. IRENE (Lc. Gottoiana × S. grandiflora), *Charlesw. Cat.*, 1910, p. 76.—Charlesworth & Co., 1909.

SCL. IRIS (Lc. Gottoiana × Sl. heatonensis), *Charlesw. Cat.*, 1914, p. 88.—Charlesworth & Co., 1913.

SCL. LOTUS (C. Harrisoniana × Sl. heatonensis), *Charlesw. Cat.*, 1914, p. 89.—Charlesworth & Co., 1913.

SCL. MARION (Lc. eximia × Sc. Thwaitesiæ). S.-L.-C. Marion, *G.C.*, 1917, ii. p. 206.—E. R. Ashton, Nov. 1917.

SCL. NIOBE (Lc. Gottoiana × Sl. Felicia), *Charlesw. Cat.*, 1912, p. 83.—Charlesworth & Co., 1911.

SCL. NOLA (Lc. Issy × Sl. Gratrixiæ), *Charlesw. Cat.*, 1912, p. 83.—Charlesworth & Co., 1911.

SCL. PERIDOT (C. Dowiana aurea × Scl. Danæ). S.-L.-C. Peridot, *G.C.*, 1917, ii. p. 85.—Sir. G. L. Holford, Aug., 1917.

SCL. PROSPERO (C. Rothschildiana × Scl. Danæ). S.-L.-C. Peridot, *G.C.*, 1915, ii. p. 270.—Sir G. L. Holford, Oct. 1915.

SCL. ROBINETTA (C. Hardyana × Scl. Danæ). S.-L.-C. Robinetta, *G.C.*, 1917, ii. p. 85.—Sir G. L. Holford, Aug. 1917.

SCL. RUBENS (Scl. Eros × S. grandiflora). S.-L.-C. rubens, *G.C.*, 1916, i. p. 140.—Elizabeth Lady Lawrence, March, 1916.

SCL. URANIA (C. Harrisoniana × Sl. Gratrixiæ), *Charlesw. Cat.*, 1910, p. 36.—Charlesworth & Co., 1909.

ORCHID HYBRIDISING.

AN enthusiastic amateur reader, who has been successful with Cool Orchids, is desirous of making experiments in hybridisation, and requests a few notes upon the subject, especially with regard to Odontoglossums and Odontiodas. We have pleasure in complying, but as other readers are interested in Warm and Intermediate Orchids, we prefer to treat the subject more generally, especially as the latter groups are more suitable for the beginner. Of course, the possessor of only a Cool Orchid house is limited in choice of subjects, and it is an unfortunate fact that the beautiful Odontoglossum group has proved one of the most intractable in the hands of the hybridist. It is easy enough to get capsules of good seed; the difficulty is to germinate it, and to get the seedlings safely through their infantile stages. Still, Odontoglossums are now being raised in enormous numbers, and we do not wonder that amateurs should desire to engage in such a fascinating hobby, and as success is largely a matter of perseverance and securing the right cultural conditions there is every hope of ultimate success. It is interesting to recall in this connection that the seedling of Odontoglossum Humeanum recorded at page 4 of our last volume was the result of an only cross, which was made to prove the parentage of a wild hybrid, a notable result considering that it was not raised in a special Odontoglossum house.

At the outset, and by way of gaining experience, one might cross any two parents of good constitution, where the shape and colour was sufficiently promising, but, apart from this, everything depends upon careful selection of parents, and every cross should be made with some definite object in view. Improved shape and colour, and increased floriferousness should be the aim, and care should be taken not to unite colours and shapes that are likely to give discordant results. A strong plant of good constitution should be selected as the seed bearer, and when such a plant is in bloom the next thing is to obtain the pollen of some suitable variety. This is not always easy in a small collection, and we have known of several crosses that could not be made because the desired parents were not in bloom together. Suitable pollen however, may sometimes be obtained from a friend, who might also be induced to attempt the germination of a few of the resulting seeds, for we have in mind cases of success which would have otherwise ended in failure. Seedlings are difficult to obtain in certain houses.

Having selected the seed bearer, the next thing to be done is to carefully remove the pollen masses from the flower to be fertilised, and then apply to the stigma that of the selected pollen parent, which will at once adhere to

its viscid surface. A tiny celluloid label, bearing a number, should now be tied loosely to the pedicel of the fertilised flower, posting this number into a memorandum book, with the dates and a clear record of the cross made. This should be done for every separate cross, and further details can be added later, as necessary. A book ruled into six or seven columns is useful for this purpose, as the columns may record, successively, the numbers of the cross, the parentage, and the date, leaving spaces for date of sowing, germination, and pricking off, with a final column for remarks. The corresponding number must, of course, be kept recorded on the labels used at every stage, so that the history of every seedling can be traced as it reaches the flowering period.

Soon after the pollinia have been applied to the stigma the effects of pollination will be observed. The column wings begin to curve inwards, and the column itself to swell, while a change in the colour of the segments, followed by shrivelling, will be noticed. The capsule will now gradually progress towards maturity, but on the first signs of opening a piece of fine tissue paper should be placed round the capsule, and tied loosely round the stalk, so as to catch any falling seeds. When the pod splits the seeds may be regarded as mature, and they may then be shaken out on a piece of paper. One may now form an idea whether any of the seed is good by examining it with a low-power lens. At first sight it may appear like minute chaff, but if swollen and somewhat darker in the centre an embryo is present and should germinate under suitable conditions. Capsules that mature normally generally contain good seed, though it may be mixed with more or less chaff, the latter being pale and having a shrivelled appearance in the centre. It is useless to sow empty chaff, but one should be quite sure that no viable seeds are present before discarding the contents of a capsule entirely.

The seeds should be sown as soon as ripe, being scattered thinly on the compost of plants that are in active growth, these being marked with a label containing the number of the cross. The compost should be in healthy condition, and should never be allowed to become dry. The position must also be shaded from direct sunlight. Progress may now be watched by means of a good lens. If germination proceeds smoothly the embryo will be seen to swell, push aside the seed coat, and become green, ultimately assuming a globular shape and producing a few root hairs, and finally the first true root and tiny leaf. We have watched all these processes, but it is an unfortunate fact that the seedlings too frequently reach the stage of a minute globule, and then refuse to progress further, soon shrivelling up. The cause is generally attributed to the absence of a particular fungus, which, by making available the necessary food supply, enables the seedling to get over the critical stage of its independent existence.

(To be continued.)

CHLORÆA GAUDICHAUDII.

CHLORÆA is a rather large South American genus of terrestrial Orchids, of which several species are decidedly showy, though they are seldom seen in cultivation. It is structurally allied to the northern Cephalanthera and Epipactis, and has its headquarters in Chili, a few species extending south to Patagonia, and a few others being found in Argentina and South Brazil, while there is a solitary outlying representative in the Falkland Islands. Of the latter a dried specimen has been sent to Kew for determination by Major F. J. Newnham, of Hove, Sussex, and as the history of the species has been much confused a note may be of interest. The species has been known for over a century, having been figured in 1770 by Pernetty (*Hist. Voy. Malovines*, ii., p. 54, t. 8, fig. 5), under the name of Satyrion. The author remarked that he had been unable to discover the flowers of the plant, though he had seen several of every size, the highest having capsules filled with seed, and a kind of tuft at the extremity resembling a cluster of dried petals of a reddish cast, and that the seed was a very fine red dust. It was also mentioned by Gaudichaud in a list of Falkland Island plants, in 1825, under the name of Arethusa lutea (*Ann. Sc. Nat.*, ser. 1, xv., p. 100), the author being under the impression that it was identical with Serapias lutea, Comm., a native of the Straits of Magellan. The mistake was pointed out four years later by Dr. Urville, who described and figured both species, calling the Falkland plant Chloræa Gaudichaudii (*Duperr. Voy. Bot.*, p. 189, t. 44, fig. A), and remarking that it was frequent in the islands. It was subsequently collected there by Wright and by Sir J. D. Hooker, the latter remarking (*Fl. Antarct.*, ii., p. 350) that it is not uncommon in moist pastures, varying a good deal in size and in the breadth of the leaves. Ten years ago the same plant was again described by Kränzlin under the name of Chloræa falklandica (*Engl. Jahrb.*, xliv., *Beibl.* 101, p. 5) from material collected by Skottsberg in two Falkland localities. The identity with C. Gaudichaudii has since been pointed out by the collector himself (*Kungl. Svensk. Vet. Akad. Handl.*, l., n. 3, p. 23, t. 1, fig. 7-10), who records it from four different localities. He remarks that the flowers, though comparatively large, are inconspicuous, and that they are cleistogamous. It may be added that Lindley, and afterwards Kränzlin, gave the Straits of Magellan as a locality of C. Gaudichaudii, but the Magellan plant really belongs to C. Commersonii, Duperry (*Hist. Voy. Bot.*, p. 191, t. 44, fig. B.), now known as Asarca Commersonii, Hook f., but as this was originally based on Serapias lutea, Pers. (*Syn.* ii., p. 513) the name Asarca lutea must be applied under the Vienna Rules. Major Newnham

remarks that although he watched the plants for months, he never saw a flower fully open ; the winds seem to cut them and turn them brown before they are fully out. A flower, however, that was carefully expanded before drying, has the peculiarity that the lip has become petal-like, having lost the prominent crest-like appendages of the normal form, and from its light yellow colour, prominently reticulated with dark green, it strongly recalls Telipogon, another striking Andine genus.—R. A. ROLFE.

ORCHIDS IN SEASON.

FIVE distinct forms of the handsome Cymbidium insigne are sent by Messrs. Sanders, St. Albans, which enable one to realise the amount of variation there is in the species. The typical form has blush pink sepals and petals, with copious crimson spotting on the lip. Two others are appreciably lighter in shade, one of them having particularly broad segments, while in the others the colour is increased to rose, with darker veins. The introduction of this beautiful species has given a great impetus to the hybridising of Cymbidiums, and will doubtless lead to further developments, particularly with C. eburneum and its derivatives.

A flower of a pretty form of Cymbidium Diana is sent from the collection of G. Hamilton Smith, Esq., Northside, Leigh Woods, Bristol, by Mr. W. E. Walker, together with its two parents, C. Pauwelsii and C. Veitchii var. concolor. The last-named parent has uniformly light yellow flowers, thus retaining the character of the original C. Lowianum var. concolor, but in the hybrid the sepals and petals are straw-coloured with some light red lines, in which respect, as also in the amount of crimson on the lip, it most resembles the other parent. It would be interesting to cross C. Veitchii var. concolor with some form in which the crimson is entirely wanting. A flower is also sent of Cymbidium Atlas (Cravenianum × Doris), a new cross which has just flowered. The sepals and petals are yellowish green, closely lined with brown, and there are numerous crimson markings on the lip. It shows characters of both C. Lowianum and C. insigne, and can be judged better when the plant becomes stronger.

Three beautiful Odontoglossums are sent from the collection of H. S. Goodson, Esq., Fairlawn, Putney, by Mr. G. E. Day. O. Lambeauianum var. Harry Goodson has the sepals and petals closely spotted with claret on a light ground, and the lip light yellow with very few red-brown dots. O. L. var. G. E. Day has a white ground with light purple spots on the lower halves of the segments. The third, of which we are a little uncertain about the parentage, is copiously blotched with claret on a white ground, the spots on the petals being arranged in zones.

ODONTONIA PITTIÆ.

AT the meeting of the Royal Horticultural Society held on February 10th last an altogether exceptional hybrid was exhibited by Messrs. Charlesworth & Co., Haywards Heath, under the name of Odontonia Pittiæ, to which a First-class Certificate was awarded. The

Fig. 6. ODONTONIA PITTIÆ.

parents were Miltonia Bleuana Pitt's var. and Odontoglossum Harryanum magnificum, and we now have the pleasure of giving its portrait, a photograph having been kindly sent by Messrs. Charlesworth. The flower most recalls a large Warscewiczella, not only on account of its general shape and the markings at the base of the lip, but also in its peculiar violet-blue colour. The shape comes from the Miltonia parent, and the colour from

the Odontoglossum, both, however, being somewhat modified, and altogether it represents a very distinct break, which it may be anticipated will be carried further, for the flowers will probably prove fertile, as in the case of its allies. We need add nothing as to the shape of the flowers, but as regards colour we may remark that the prevailing tint is violet-blue, shading off to a lilac margin, while there are a few light-coloured spots on the sepals and petals, and some radiating lines and a yellow spiny crest on the lip. There is a special interest in hybrids of this type, because of the possibility of obtaining a race of plants with the Odontoglossum character yet better adapted to a warmer climate, for there are many localities, particularly in the United States, where the summer temperature is too warm for Odontoglossums. Altogether it is a very remarkable plant, and future developments will be awaited with interest.

ODONTOGLOSSUMS FROM EXETER.—Several interesting and beautiful Orchids are sent from the collection of Mrs. J. J. Neale, Oxton, Kenton, near Exeter (gr. Mr. E. Swinden). A flower of Miltonia Bleuana is from a well-grown plant, producing twelve flowers from a single bulb, there being spikes of five, four, and three flowers, producing a fine effect. A fine spray of Odontocidium Edwardatum (Odm. Edwardii × Onc. serratum) shows a curious combination of the characters of two very distinct parents, the shape being most like that of the Oncidium, while the colour is dark maroon-purple, with lilac tips to the petals, and a prominent yellow crest to the lip. Both the lip and column most recall the Oncidium parent. There is a charming form of Odontoglossum armainvillierense, good in shape, and very regularly blotched with ruby purple, and the O. Pescatorei character is, as usual, very prominent in the lip and column. A fine five-bloomed spike of what is called a yellow Odontoglossum Rossii belongs to O. Humeanum, the natural hybrid with O. maculatum, whose history was exhaustively given in our last volume (pp. 4-6, 41). A beautifully-marked form of Cypripedium Helen II., and flowers of Cymbidium Garnet and C. Seamew, complete a varied and interesting series.

After the above was in type, came a ten-flowered spike of a very beautiful blotched Odontoglsssum crispum, which Mr. Swinden remarks is quite the best they have flowered up to now. The parents were two blotched crispums, but the varieties are unknown. The flowers are large and of good shape, covered with large claret-red blotches on a white ground, slightly suffused with rose, and the petals distinctly toothed. From its characters we should suggest the presence of O. Wilckeanum in its ancestry. A good form of O. eximium, has heavily blotched sepals, a zone of purple spots on the petals, and much of the O. Pescatorei character in the lip and column-rings. There are also flowers of O. sceptrum, Hunnewellianum,

Hallii, Coradinei, mulus, Lindleyanum, and what we take to be a form of O. elegans, though obtained as O. Kegeljanii. A spike of the brilliant Ada aurantiaca, a spray of Oncidium superbiens, and three good forms of Sophronitis grandiflora, help to make a very attractive group.

CALENDAR OF OPERATIONS FOR MARCH-APRIL.

By J. T. BARKER, Orchid grower to His Grace the Duke of Marlborough, Blenheim Palace, Woodstock, Oxon.

THE months of March and April, with their proverbial changes of wind, sunshine, and showers, are a trying period to all who have the management of a collection of Orchids. Watchfulness is necessary in the matter of ventilation, so that the plants may not receive a check, either from too much cold air blowing upon them, or from insufficient air, heat or moisture. Shading from bright sunshine must now be generally adopted for all Orchids, with the exception of those grown in the Mexican house, which revel in light and air. It will be well to emphasise the advice concerning the benefit of shading Orchids during these early months, when the plants are emerging from the dull days of winter to the bright ones of spring.

The beautiful sunshine which we have recently enjoyed, has had a most stimulating effect upon all Orchids; new roots are pushing forth, together with new growths, and everything is full of promise for the future. Speaking generally, the past winter has been favourable for plant life, with plenty of light, and fair progress has been made at this early season of the year. So fast will be the development of growth at this season, that it will need energy to keep abreast of the work.

REPOTTING, which constitutes the principal work at this season, should be done carefully and well, and as most collections have suffered more or less from the want of rooting material, there is much leeway to make up. It is a difficult matter to nurse an unhealthy plant back to vigour, hence the necessity of taking care that the plants do not suffer at the roots from decomposed materials.

TEMPERATURES.—With the lengthening days, and the increased amount of light and sunshine, the plants will become active, and commence to push their growth rapidly. The temperatures may now be raised a few degrees higher all round, and with the increased heat, additional atmospheric moisture must be given. A humid atmosphere may now be maintained in all the houses, and conditions made that are conducive to sound healthy growth. Orchids cannot grow satisfactorily in a hot, parched atmosphere, any more than in a wet, cold one.

WATERING at this season requires a great amount of care on the cultivators' part, as much harm may accrue by the compost being in a

over-saturated, or over-dry condition for any length of time. A certain amount of discrimination must be used in supplying and withholding water, first making sure that the compost is dry enough, and then giving a good soaking, taking care that the compost becomes dry again before repeating the operation.

VENTILATION during this month requires great care and attention, perhaps more than at any other season of the year. It is often difficult to ventilate a house as one would like, especially during the many sudden changes which often occur at this period. Air must, nevertheless, be admitted on all favourable occasions to sweeten the atmosphere. Fresh air is life to plants, but in its admission we must be careful to avoid draughts, or much mischief will be done.

STOKING, during this period, will also need considerable attention, as the outside conditions often vary from one extreme to the other. A fair amount of artifical warmth will still be required at night in the warmer divisions, but during the day, only just sufficient should be given to maintain the temperatures. Sun heat should be utilised whenever possible to increase the temperature a few degrees. Too much heat in the pipes is injurious, and in all cases extreme fluctuations of temperature must be avoided.

SHADING will now come into general use, but it must not be applied to excess, or the plants will become weak and spindly. After the dull dark days of winter, the leaves and bulbs of the plants are tender, and they must be inured to the light and heat of the sun gradually. Direct sunshine in some cases seems to paralyse plants, especially those that delight in shady positions, hence the necessity of patient observation on the part of the cultivator, and the separation of those plants which do not succeed in strong light.

THUNIAS will be commencing to grow, and must be repotted before the new shoots commence to push forth their roots. The compost I recommend for them is half peat and half loam, from which all the fine particles have been removed, mixed with some sphagnum moss, and dried cow manure. The pots must be well drained, as when in full growth and well rooted, an abundant supply of water is necessary. They must not be potted too firmly, as their roots are not capable of penetrating a close compost. Thunias enjoy a sunny position in the warmest house, placed well up to the glass, and exposed to the light, and water must be sparingly applied to them until the flower spike appears at the apex of the newly made bulbs. They may be potted up singly, or made up into specimens, according to the requirements of the cultivator. When in full growth an occasional watering with weak manure water will be beneficial.

CALANTHES of the deciduous section will need repotting when the new

growths are a few inches high, and are about to push forth new roots. Previous to repotting it is advisable to thoroughly overhaul and closely examine the bulbs for scale and any other insect pest which may infest them. Care must be taken whilst cleansing the pseudobulbs not to injure the eyes or young growths at the base. The old dead roots may be cut off to within an inch or so, to form a support that will keep the plants steady until the young roots have a firm hold of the new compost. The pseudobulbs may be repotted singly, or three or four large ones, or even more, may be potted together in larger pots. Perfect drainage is essential, and the compost should consist of half turfy loam from which the earthy particles have been shaken, one-fourth chopped A1 fibre, and one-fourth dry cow dung, with a moderate quantity of live sphagnum moss, small crocks, and coarse silver sand. These materials should be well mixed together, and allowed to become warm before being used. When repotting, the compost should be made moderately firm, allowing sufficient space for a top-dressing at a later period, when the plants have become thoroughly established and are growing rapidly. For several weeks after repotting the plants will require little or no water until the new roots have freely entered the new material. Their surroundings should be kept moderately moist by damping between the pots occasionally. When the roots have got a thorough hold of the new material, and the growths have made considerable progress, abundance of water is required, and an occasional watering with liquid manure is beneficial. Care should be taken when repotting the plants that the compost is neither too wet nor too dry.

PHAIUSES will succeed in a similar compost to Calanthes, and require similar conditions, both as regards temperature and other details. Those that are in need of new rooting material should have attention just before the new growths commence to push roots.

CYMBIDIUMS.—There are now so many beautiful hybrids of this easily grown genus, in addition to the species, that no collection is complete without some of them. As decorative plants, or as cut flowers, they have few rivals, and deserve extended culture. They succeed in a cool Intermediate temperature, with an abundance of fresh air; in fact they succeed if treated like warm greenhouse plants, which is no mean consideration in these days of dear fuel. They delight in a compost, similar to that used for Calanthe, and resent disturbance of the roots more than many Orchids; therefore only those that are in want of new material should be disturbed.

CYPRIPEDIUMS.—The potting of these useful winter-blooming plants should be attended to as fast as they pass out of flower. Should there be any danger of the compost becoming decayed before another season, it is much the best practise to repot them now. A suitable compost has been

given so many times in these pages, that there is no need to repeat it. The sooner the potting is completed the better, the plants getting a much longer season of growth, and plants that are well established and well rooted produce flowers of improved quality.

CATTLEYAS, Læliocattleyas, Brassocattleyas, and other members of this large and beautiful family that have passed out of flower, and are about to push new roots, should have attention as regards repotting, should they require it. It is necessary that the compost in which they are grown should be kept in a sweet and healthy condition, hence the necessity of potting the plants firmly. No Orchids resent sour material more than this family, and none will succeed better if kept in sweet material. A suitable compost is made up of equal portions of peat, A1 and osmunda fibres, and sphagnum moss, all thoroughly cleaned and used in a rough state. If any difficulty is found in obtaining good peat fibre it may be left out, but personally I think better root action is obtained when it is used.

DENDROBIUMS of the deciduous section will now be responding to the influence of increased light and heat, and flower buds will develop quickly, and make a good show. As a means of prolonging the display some plants may be removed to cool quarters, but this is not to be recommended in the case of weak growers or delicate plants. D. Phalænopsis and its varieties that are developing new growths, and are in need of new material, should have attention as soon as new roots are observed to be pushing from the base of the young growths. It is perfectly safe to repot any plant whenever new roots are observed to be pushing. The chief details in the cultivation of these plants are plenty of heat, light, and moisture whilst in full growth, with a dry rest after growth is completed. A clean fibrous compost made up of equal portions of A1 fibre and sphagnum moss will answer their requirements. They should be placed in small or moderate-sized receptacles, as over-potting is detrimental

ODONTOGLOSSUMS.—The present season is a suitable time to afford more root room to such plants as are not flowering, but none should be disturbed unless repotting is absolutely necessary. Those having sufficient root-room, and the material in good condition, should not be disturbed until the autumn. Plants that have their new growths overhanging the edge of the pots may be turned out, all useless back bulbs removed, and as much of the back part of the compost taken away as possible. The material for repotting should consist of a mixture of peat and A1 fibre, sphagnum moss, and broken leaves, all thoroughly mixed together. The pots should be well drained, for although these plants need plenty of water whilst growing, a stagnant compost is injurious to them, as to other Orchids. After repotting, afford water with great care, for any excess of moisture at this stage will cause the old roots to perish, and the pseudobulbs to shrivel. Plants

which have recently flowered should be induced to rest, and should only be afforded sufficient water to keep them plump; if kept too wet there will be weak premature growths.

GENERAL REMARKS.—Nature is exacting in her demands, and unless each detail in culture is performed at the proper time, the best results cannot be looked for. This in practice, may be hard to achieve, but those with an ideal are the most likely to succeed. Cleanliness in every detail should be practised, as a clean start means, in most cases, a satisfactory ending.

VENTILATING ORCHID HOUSES IN EARLY SPRING.

I WAS looking over an extremely well-grown collection of Orchids in the middle of March, and the grower, a man of mature experience and proved ability, said he had had more yellow leaves than he liked, and was looking round for the cause. We thereupon put our heads together and at last came to the conclusion that it was a matter of giving too much air so early in the year. The Odontoglossums had lost a good many leaves, and the Cattleyas also had more yellowing than was pleasant.

The problem presented was this: The Odontoglossums were repotted in August and September, had re-established themselves comfortably in the new compost, and settled down into fine plump stuff with strong growths by, say, the end of November. From this period onwards, until February, their progress was quite normal—increasing growth, and added greenness and thickness of leaf, giving much hopeful promise for the lengthening days. And now, when the new bulbs are finishing, and the days are as long as the nights, when spring is nearly here, why should leaves fade in increasing numbers? Leaves fall in the autumn, we argue, not in the spring.

The past winter was exceptionally fine, and the spring-like, sunny weather of February gave tempting opportunities of opening the ventilators, and perhaps those opportunities were too well used. A high inside temperature caused by the sun on a cold, or even temperate day, should not be the signal to throw wide open the ventilators, but even the best of us are liable to make mistakes!

This has been a season when blinds were wanted early, and it is always safer to shade Odontoglossums for an hour or two on sunny days during the latter half of February, for the old leaves are particularly sensitive at this season. Permanent shading is not to be recommended in any case, as there are so many dull days in the year that are thereby made doubly dull, and in these early days, perhaps, only a few hours a week will make for safety. To stipple a house over with permanent shading in February is

unthinkable, but to have the blinds fixed ready for use, if necessary, is a wise precaution. It may be that a sudden burst of sun, with possibly unavoidable fire-heat, will send the temperature inside racing up, and this is when restraint in ventilating should be exercised; and on windy days enough air will find its way into most houses without the necessity of opening the ventilators at all.

A sudden rise of temperature caused by sun heat in March is not much to be afraid of, and no attempt should be made to *blow* it out. Little stability of temperature can be hoped for, nor must we attempt to modify it too severely by ventilation so early in the year. The constancy of the night temperature is of more moment, and is easy of attainment.

But I would venture to say that temperature has very little to do with leaves in healthy plants becoming prematurely yellow in the early spring. Too much air admitted at this season—though the temperature remain well up—suggests itself as the cause, helped no doubt by fitful periods of brightness without direct sunshine. Such plants as Tomatoes and Geraniums, when removed from the coolest quarters inside and stood outside, quickly lose some of their lower leaves, those furthest from the growing point, which otherwise they would have long retained. In opening the top and bottom ventilators of an Orchid house the accustomed moisture is removed from the plants, and the leaves furthest from the lead or growing point now throw off the moisture at an accelerated rate, and the supply is too slowly replaced, and consequently they begin to wither. With the longer light there is little doubt that the plants steadily adapt themselves to the airier conditions, and what had during the winter become a kind of stagnant condition of the back or dormant parts of the plants—with the relatively close conditions imposed upon them during the short days—now get a quicker supply of sap, and are able to replace all that is required of them. Some such explanation must be found for the very sensitive condition of the leaves on the back bulbs in the early months when the sun begins to get power, but the precautions to be taken are simple when we realize the necessity for them. J. M. BLACK.

QUEEN WASPS IN ROLLER BLINDS.—Thinking you may be interested, I send particulars of a fine haul of queen wasps, secured on my premises during March. We have captured 130; they had hibernated in the lath blinds on the northern side of the Odontoglossum houses, these blinds not having been unrolled since used last autumn, and on the first day of being unrolled the wasps were captured. No doubt the small amount of escaping warmth from the roof and the comparatively dry position had attracted them, and I bring this to your notice in order that others may be on the look-out for similar hauls.—A. MCBEAN.

CYPRIPEDIUM NESTA.

THE annexed figure represents a very beautiful seedling Cypripedium that flowered for the first time in the collection of E. D. Bostock, Esq., Oulton Cross, Stone, Staff., at Christmas last. The parentage is C. Eurybiades var. mirum × Lord Wolmer, and the figure, which is from a photograph by Mr. F. W. Rolfe, represents the flower two-thirds natural size. Both shape and colour are excellent. The dorsal sepal is white, with a light green stain at the base, and the spots are purple, while the petals are

Fig. 7. CYPRIPEDIUM NESTA.

yellow-green, with brown markings, and the lip is of the latter colour in front. An analysis of parentage shows that it is made up of the three species, C. Boxallii, insigne, and Spicerianum, which have been combined in various ways through five generations, selection having been practised at every stage. In its ancestry C. Leeanum has been used four times, which would account for a marked resemblance to this fine hybrid, while C. Hera appears twice, the others being C. Mons. de Curte and C. Alcibiades. It is curious to reflect that either C. Leeanum × Boxallii, C. insigne × Calypso, or C. Spicerianum × Mons de Curte would give a hybrid of similar specific composition, though in somewhat different proportions. It is certainly a charming thing.

SCHOMBURGKIA CROSSES.

THE revision of Schomburgkia and the recognition of the specics of the hollow-bulbed, or S. tibicinis, section as forming a distinct genus, under the name of Myrmecophila (*O.R.*, xxvi. pp. 49-51), necessitates a revision of a small group of hybrids. It has long been recognised that the plant known as Lælia superbiens, Lindl., really belongs to Schomburgkia, and as this species has been crossed with Cattleya, Lælia and Sophronitis its hybrids will now stand as follows :—

SCHOMOCATTLEYA.—A genus formed to include the hybrids between Schomburgkia and Cattleya, of which five are at present known.

SCHOMBOCATTLEYA CHOLETIANA (C. Mossiæ × S. superbiens). Lælio-cattleya Choletiana, *J.S.H.Fr.*, 1902, pp. 138, 139.—A. Dallemagne, Feb. 1902.

Sc. DENISII (C. Lueddemanniana × S. superbiens). Lc. Denisii, *O.R.*, 1906, p. 135.—F. Denis, April, 1906.

Sc. HUMBERTII (C. Aclandiæ × S. superbiens). Lc. Humbertii, *J.S.H.Fr.*, 1902, p. 337.—A. Dallemagne, May, 1902.

Sc. PUJETII (C. Trianæ × S. superbiens). Lc. Pujetii, *J.S.H.Fr.*, 1904, p. 105.—Ch. Maron, Feb. 1904.

Sc. RIGIDA (C. Lawrenceana × S. superbiens). Lc. rigida, *G.C.*, 1912, i. p. 267.—Sander & Sons, April, 1912.

SCHOMBOLÆLIA.—A genus formed to include hybrids between Schomburgkia and Lælia, of which the following one is only known.

SCHOMBOLÆLIA NEMESIS (L. anceps × S. superbiens). Lælia Nemesis, *G.C.*, 1902, i. p. 85.—De B. Crawshay, Jan., 1902.

SCHOMBONITIS.—A genus formed to include hybrids between Schomburgkia and Sophronitis, of which the following has appeared.

SCHOMBONITIS STELLA (Schomburgkia superbiens × Sophronitis grandiflora). Sophrolælia Stella, *G.C.*, 1917, i. p. 220.—Lord Rothschild, May, 1917.

MYRMECOCATTLEYA.—A genus formed to include hybrids between Myrmecophila and Cattleya, of which only one is at present known.

MYRMECOCATTLEYA SPIRALIS (Cattleya Mossiæ × Myrmecophila tibicinis). Schombocattleya spiralis, *O.R.*, xiii. p. 249, fig. 61.—A. Dallemagne, Aug., 1903.

MYRMECOLÆLIA.—A genus formed to include hybrids between Myrmecophila and Lælia, of which the following is only known.

MYRMECOLÆLIA TIBIBROSA (L. tenebrosa × M. tibicinis). Schombolælia tibibrosa, *O.R.*, 1919, p. 91.—F. J. Hanbury, May, 1919.

SOCIETIES.

ROYAL HORTICULTURAL.

THE opening meeting of the year was held at the Royal Horticultural Hall, Vincent Square, Westminster, on January 13th, and brought together a very fine display of Orchids. The award list included one First-class Certificate, two Awards of Merit, and five Medals.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), W. Bolton, W. H. White, R. Brooman White, E. R. Ashton, T. Armstrong, J. E. Shill, Arthur Dye, E. J. Lucas, J. Charlesworth, S. W. Flory, F. K. Sander, Pantia Ralli, Walter Cobb, A. McBean, G. Wilson, R. A. Rolfe, J. Wilson Potter, F. J. Hanbury, and C. H. Curtis.

FIRST-CLASS CERTIFICATE.

ODONTIODA ALCANTARA RALLI'S VAR. (Oda. Cooksoniæ × Odm. eximium).—A brilliant hybrid, bearing large and finely-shaped crimson flowers, shaded with orange, and having a white margin to the sepals and petals, and some crimson markings on the lip. Exhibited by Pantia Ralli, Esq., Ashstead Park, Surrey (gr. Mr. Farnes).

AWARDS OF MERIT.

LÆLIOCATTLEYA ALBORAK (Lc. Isabel-Sander × C. Maggie-Raphael alba).—A large and beautiful hybrid, with broad, pure white sepals and petals, and the front of the lip light violet, margined with white, and with a bright yellow disc. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

ODONTOGLOSSUM THWAITESIÆ FASEY'S VAR. (Harryanum × Rossii rubescens).—A brilliant variety, showing most of the O. Rossii character, and having blush white sepals and petals barred with claret-red, and the lip mauve with a yellow crest. Exhibited by W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour).

SILVER FLORA MEDAL.

To Lady Ludlow, Luton Hoo (gr. Mr. Metcalfe), for a very fine group of the beautiful Lælia Gouldiana, comprising some sixty plants with an aggregate of about 450 flowers, and demonstrating its value as a decorative plant during the Christmas season.

To Mrs. Wm. Raphael, Castle Hill, Englefield Green (gr. Mr. Brown), for a most beautiful group of cut spikes of the blush-white Calanthe Harrisii. They were remarkably strong, bearing thirty to forty flowers each, and being arranged with suitable foliage, produced a charming effect.

To Messrs. Charlesworth & Co., Haywards Heath, for a rich group, including some excellent Odontiodas and Odontoglossums, Odm. Thetis

(Solon × Dusky Monarch), being a richly-coloured flower of good shape, and Oncidium incurvophorum (incurvum × corynephorum), a very distinct novelty, with white and purple flowers of intermediate shape. Lælio-cattleya Thetis (Lc. Myrrha × C Triana Grand Monarch), and Brassolælia Billingtonii (Bl. Gratrixiæ × B. Digbyana) were also interesting novelties, the latter being deep buff yellow, with a three-lobed and well-fringed lip.

SILVER BANKSIAN MEDALS.

To Messrs. Flory & Black, Slough, for a small group, including Sophro-catlælia Ruboris (Lc. rubens × Lc. Doris), having rosy-mauve sepals and petals, and a ruby-red lip with yellow throat; also a few other Sophronitis hybrids and Brassocattleyas.

To Messrs. Sanders, St. Albans, for a good group, including Cypri-pedium memoria F. M. Ogilvie, C. British Lion (Curtmannii × Pyramus), a richly-coloured flower, C. Marshall Haig var. Victory, and some good Odontoglossums and Læliocattleyas.

OTHER EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), sent a fine specimen of Odontoglossum Gatton Princess.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent fine forms of Læliocattleya Schrœderæ and Cypripedium Eurybiades.

At the Meeting held on January 27th, there was again a fine display, and the awards consisted of six Medals, two Awards of Merit, and one Cultural Commendation.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), W. Bolton, C. J. Lucas, Arthur Dye, J. Wilson Potter, G. Wilson, R. A. Rolfe, Stuart H. Low, W. J. Kaye, F. J. Hanbury, F. K. Sander, T. Armstrong, A. McBean, J. Cypher, J. Charlesworth, W. H. Hatcher, J. E. Shill, S. W. Flory, W. H. White, Walter Cobb, C. H. Curtis, R. G. Thwaites, and R. Brooman White.

AWARDS OF MERIT.

CATTLEYA MRS. JAMES WATSON, THE DELL VAR. (Maggie-Raphael alba × Trianæ).—A handsome variety, having broad, white sepals and petals, the latter somewhat undulate at the margin, and the lip rose purple, with some yellow veining on the disc. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

CYMBIDIUM ALBANENSE JOICEY'S VAR. (erythrostylum × insigne).—A fine variety, bearing a spike of large blush-pink flowers, with lines of claret-red blotches on the lip. Exhibited by J. Joicey, Esq., Witley, Surrey (gr. Mr. J. Mackay).

CULTURAL COMMENDATION.

ONCIDIODA COOKSONIÆ.—To Mr. Farnes, Orchid grower to Pantia Ralli,

Esq., Ashtead Park, Surrey, for a well-grown plant, bearing a fine spike of orange-red flowers, and making a very effective display.

SILVER-GILT FLORA MEDAL.

To Messrs Armstrong and Brown, Tunbridge Wells, for a brilliant group, including numerous good Cattleyas, Cypripediums, Odontiodas and Odontoglossums, the centre being occupied by a fine typical O. crispum bearing a branched spike of forty-one flowers. Among numerous blotched forms was O. Horatio (Menier × Rex), a fine thing, white with claret-red blotches at the base of the segments. We noted also two well-bloomed plants of the pretty little Epidendrum polybulbon, Cypripedium Thalia, C. Maudiæ, and C. Venus Orchidhurst var., a series of the charming Cattleya Maggie-Raphael alba, and others.

SILVER FLORA MEDALS.

To Messrs. Charlesworth & Co., Haywards Heath, for a choice group, including many fine Odontiodas and Odontoglossums, Brassocattleya Sofrano (Bc. Leemaniæ × C. iridescens), a deep yellow flower of good shape, Bc. Beaumont (C. Empress Frederick × Bc. Cliftonii), the brilliant Sophrocatlælia Isabella, deep red and blackish brown forms of Odontioda Brackenhurst, Odontonia Magali-Sander var. xanthina with a very fine panicle, Dendrobium Jamesianum, Lælia anceps, Odontoglossum Ceres magnificum, Odontioda Beryl (Odm. eximium × Oda. Wilsonii), and others.

To Messrs. Hassall & Co., Southgate, for a fine group of Cymbidiums, including well-bloomed examples of C. Alexanderi, Capella, Moira, Sybil and Castor, and making a fine display.

To Messrs. Stuart Low & Co., Jarvisbrook, for a fine group, including Læliocattleya Goldfinch, St. Gothard and Orion, Cattleya O'Brieniana alba, C. Leander, Gomeza crispa, Cypripedium Boltonii, Lælia anceps, and many other good things.

SILVER BANKSIAN MEDALS.

To Messrs. J. Cypher & Sons, Cheltenham, for a group of choice Cypripediums, noteworthy among them being C. Arthurianum var. Sanderæ with three yellow flowers, C. Prince of Asturias, with purple spots on the broad, white dorsal sepal, C. Alcibiades magnificum, C. Eurybiades splendens, C. Ernest Read, C. Thompsonii and others, the plants being finely grown and well-bloomed.

To Messrs. Sanders, St. Albans, for a good group, including the rare Arachnanthe Clarkei, a good Miltonia Bleuana, Cœlogyne intermedia, Odontioda Bradshawiæ, and a few good Cypripediums.

OTHER EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), showed Brassocattleya Gatton-Lily var. majestica, a charming white form, and Odontioda Thwaitesiæ.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden), sent Brassocattleya Helen (Bc. Mariæ × C. Fabia), a rosy-mauve hybrid.

W. R. Fasey, Esq., The Oaks, Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour) sent a fine scarlet form of Odontioda Cooksoniæ.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Taylor), sent Sophrocattleya Santa-Fé (C. Rhoda × Sc. Doris), with two orange-red flowers, Læliocattleya Buenos-Aires, and Odontoglossum San-Juan (Doris × Lambeauianum) a richly-coloured hybrid.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed Odontoglossum Dircimium (Dirce × eximium), dark claret red with white tips.

At the meeting held on February 10th there was a very fine display of Orchids, and the awards consisted of two First-class Certificates, two Awards of Merit, three Cultural Commendation and eight medals.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), J. Wilson, A. Dye, W. Bolton, C. J. Lucas, W. H. White, R. A. Rolfe, R. G. Thwaites, A. McBean, F. J. Hanbury, J. Charlesworth, J. Cypher, J. E. Shill, H. G. Alexander, F. K. Sander, S. W. Flory, Sir Harry J. Veitch, R. Brooman White and C. H. Curtis.

FIRST-CLASS CERTIFICATES.

CYPRIPEDIUM MEMORIA F. M. OGILVIE (Curtmannii × Pyramus).—A very fine hybrid, having a large white dorsal sepal, with light green base and numerous large purple spots all over, and the very broad petals and lip yellow marked with mahogany brown markings, thus recalling C. Beeckmannii in the latter respect. Exhibited by Messrs. Armstrong & Brown.

ODONTONIA PITTIÆ (M. Bleuana Pitt's var. × O. Harryanum magnificum).—An altogether remarkable hybrid, recalling a large Warscewiczella in general character. The flower most resembles the Miltonia parent in shape, and the segments are broad, and violet blue in colour, with some yellowish markings at the base. Exhibited by Messrs. Charlesworth & Co. This fine acquisition is figured at page 41.

AWARDS OF MERIT.

ODONTOGLOSSUM CRISPO-SOLON.—A striking hybrid, the greater part of the segments heavily blotched with claret on a white ground. The spike bore eight fine flowers. Exhibited by H. T. Pitt, Esq.

ODONTOGLOSSUM DOROTHY ARKLE.—A handsome hybrid, with large and finely-shaped flowers, densely blotched with claret red on a light ground. Exhibited by Messrs. Charlesworth & Co.

CULTURAL COMMENDATIONS.

To Mr. Farnes, Orchid grower to Pantia Ralli, Esq., for a fine specimen of Cymbidium Gottianum; to Mr. Gillett, gardener to Col. Stephenson

Clarke, C.B., for a well grown Lycaste Balliæ with nine large claret-red flowers; and to Messrs. J. & S. McBean, for a finely-bloomed plant of the scarlet Odontioda Bradshawiæ var. Olympus.

SILVER-GILT FLORA MEDALS.

To Messrs. J. & A. McBean, Cooksbridge, for a very fine group of Odontoglossums, Cattleyas, Læliocattleyas, Cymbidiums, and others, noteworthy among them being the beautiful Læliocattleya Linda, Sophrocatlælia Olive, Odontoglossum armainvillierense xanthotes, some well-grown O. crispum, Odontioda Diana, Oncidium McBeanianum, and other good things.

To Messrs. Stuart Low & Co., Jarvisbrook, for a large and excellent group of Cattleyas, Læliocattleyas, Odontoglossums, etc., noteworthy exhibits being the rare Helcia sanguinolenta, Odontoglossum Rossianæ, Oncidium cucullatum, O. splendidum, the striking Lowiara insignis, and several other brilliant Sophronitis crosses.

SILVER FLORA MEDAL.

To H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood) for an interesting group, including the brilliant Lycaste Balliæ, Miltonia St. Andre, Lycaste Skinneri alba, Masdevallia Hinksiana, and the tiny M. similis, Odontoglossum cirrhosum, the rare Eulophia gracilis, a few Cypripediums and others.

To Messrs. Charlesworth & Co., Haywards Heath, for an excellent group, including Brassolælia Billingtonii (Bl. Gratrixiæ × B. Digbyana), a buff-yellow flower, with well-fringed lip, Brassocattleya Andre Maron, and a beautiful series of Cattleyas, Læliocattleyas, Odontiodas and Odontoglossums.

SILVER BANKSIAN MEDALS.

To Col. Cary Batten, Abbots Leigh, Bristol, for a fine group of Cypripediums, including C. Niobe, C. smaragdinum, C. insigne Sanderæ, C. Olivia, C. Col. Cary Batten, and other interesting things.

Messrs. James Cypher & Sons, Cheltenham, for a small group of choice Cypripediums, with well-bloomed examples of Sophronitis grandiflora, Odontiodas and a few other good things.

To Messrs. Flory & Black, Slough, for a small group of hybrid Orchids, in which we noted a fine example of Cattleya Enid, the brilliant Sophrocatlælia Floryi, Sophrocattleya Saxa, and several unnamed blotched Odontoglossums.

To Messrs. Sanders, St. Albans, for an interesting group, including Cattleya Empress-Frederick Sanders' var., a beautiful thing with white sepals and petals, Brassocattleya Maroniæ, Cymbidiums Albatross and Gottianum, the rare Mormolyce lineolata, and a few Cypripediums of the popular winter-blooming section.

OTHER EXHIBITS.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Taylor), showed Læliocattleya Linda var. Roehampton (C. Dowiana × Lc. Arachne), a fine variety, with salmon-coloured sepals and petals, and a violet-crimson lip.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Gover), staged an interesting little group, including Sophrocattleya Ramilles, Odontioda Elizabeth (Thwaitesii × Bradshawiæ), most like the latter in colour. Odontoglossum harvengtense, and a few others.

Messrs. Armstrong & Brown, Tunbridge Wells, sent a few interesting things, including Odontoglossum Model (Aglaon × promerens), a very round flower, blotched with claret-red on a white ground, O. Violetta (Doris × Armstrongiæ), a well-shaped violet-rose flower, O. Robin-Hood (Mars × illustrissimum), a dark, claret-red flower of excellent shape.

At the Meeting held on February 28th, the display of Orchids was again good, and the awards consisted of one First-class Certificate, two Awards of Merit, and six Medals, one being a Lindley Medal for progress.

Orchid Committee present: Sir Jeremiah Coleman, Bart. (in the chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, W. Bolton, Arthur Dye, R. A. Rolfe, W. H. White, R. Brooman White, A. McBean, S. W. Flory, W. H. Hatcher, F. K. Sander, J. E. Shill, C. J. Lucas, E. R. Ashton, Walter Cobb, T. Armstrong, W. J. Kaye, and J. Charlesworth.

The Chairman called the attention of the Committee to the well-deserved Belgian Honour accorded to Sir. Harry J. Veitch, and also to his election as a Vice-President of the Royal Horticultural Society, a distinction that would not deprive the Orchid Committee of his valued services. The heartiest congratulations of the Committee was expressed.

FIRST-CLASS CERTIFICATE.

MILTONIA BLEUANA PRINCESS ELIZABETH (vexillaria × Roezlii).—An exceptionally fine variety, having large blush-white flowers, with the greater part of the petals rose, and a rayed, reddish-orange blotch at the base of the lip. Exhibited by M. Firmin Lambeau, Brussels (gr. M. E. de Munter). A Silver-gilt Medal was also awarded to this handsome plant.

AWARDS OF MERIT.

ODONTOGLOSSUM CONQUEROR FASEY'S VAR. (illustrissimum × crispum).—A well-shaped variety, having the flowers heavily blotched with claret on a white ground, and the lip white with claret-red blotches round the yellow crest. Exhibited by W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. Seymour).

ODONTOGLOSSUM HENRY VIII. (Solon × Aglaon).—A well-shaped, claret-red flower, with a few intersecting white lines and a narrow white margin. Exhibited by W. R. Fasey, Esq.

SILVER-GILT FLORA MEDAL.

To Messrs. Armstrong & Brown, Tunbridge Wells, for a very fine group, largely made up of Odontoglossums and Odontiodas, with Dendrobium nobile virginale, D. n. Sir F. W. Moore, an exceptionally fine seedling type, several good Læliocattleyas, Bulbophyllum Medusæ, Epidendrum polybulbon, Cypripedium callosum Sanderæ, C. Venus Orchidhurst var., a pretty hybrid from Cattleya Freya × Sophrocattleya Chamberlainii, with brightly-coloured flowers, and various other good things, the plants generally showing excellent culture.

SILVER FLORA MEDALS.

To Messrs. Charlesworth & Co., Haywards Heath, for a fine group of Odontoglossums, Odontiodas and others, those specially noted being the light yellow Odontonia Magali-Sander xanthotes, Odontioda Nada (Oda. Red Cross × Odm. eximium), O. Lyra (Odm. Jasper × Oda. Royal Gem) with fifteen ruby red flowers, Cochlioda miniata, Brassocatlælia Joan, and a charming primrose yellow Læliocattleya, derived from Cattleya Schrœderæ alba crossed with the hybrid Lc. Lydia × Myra, which should develop into a good thing when the plant becomes stronger.

To Messrs. Stuart Low & Co., Jarvisbrook, for a large and excellent group, including the rare Odontoglossum Rossii immaculatum, a good O. Rolfeæ, some brilliant Odontiodas, two well-bloomed examples of Sophrolælia Marriottiana, a pretty Sophrocatlælia from Lc. Mercia and Sc. Saxa, the rare Dendrobium Vannerianum, etc., etc., the whole making a very bright display.

To Messrs. J. & A. McBean, Cooksbridge, for a group of well-grown Odontoglossums, Odontiodas, and Læliocattleyas, etc., noteworthy among them being the chaste Cattleya Cowaniæ alba, Brassocattleya Bianca, a bright scarlet Odontioda Cooksoniæ, Læliocattleya Arcturus, and a nearly unspotted Odontoglossum armainvillierense.

SILVER BANKSIAN MEDAL.

To Messrs. Flory & Black, Slough, for a pretty group of Odontiodas and Odontoglossums, with Cattleya Douai, C. Suzanne Hye, and Sophrocattleya Venus.

OTHER EXHIBITS.

Sir Mervyn E. M. Buller, Broomhill, Spratton, Northampton (gr. Mr. C. Kench), sent Cattleya Clotho splendens, rose with the front of the lip violet-crimson.

Sir Jeremiah Colman, Bart., Gatton Park, sent Cœlogyne gattonensis (speciosa × Sanderæ), most like the latter, also well-bloomed plants of the Australian Sarcochilus Fitzgeraldii and S. Hartmanni.

Pantia Ralli, Esq., Ashstead Park (gr. Mr. Farnes), sent Odontoglossum eximium var. Arghiro, heavily blotched with claret-red.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A meeting was held at the Coal Exchange, Manchester, on January 5th, 1920, when the members of Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, A. Hanmer, J. Howes, A. Keeling, J. McNab, D. McLeod, W. Shackleton, E. Tack, J. Thrower, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Læliocattleya Firminii (Lc. Ceres × C. Dowiana aurea), and Cypripedium Prince Albert (Tommy Curte × Hera-Mostyn magnifica), from S. Gratrix, Esq.

AWARDS OF MERIT.

Cypripedium Cyclops West Point var, C. Joy Sander, C. Rheims Invicta (Mrs. Mostyn × Van Dyke), Cattleya Victory, and Odontoglossum, amabile Alpha, from S. Gratrix, Esq.

Lycaste Skinneri vars. Fairy and Rosy Morn from Mrs. Gratrix.

Cypripedium Sadie (Euryades New Hall Hey var. × Draco), and C. Actæus Lady Greensleeves, from Mrs. Bruce and Miss Wrigley.

Cypripedium Cavalier var. swintonense, from B. J. Beckton. Esq.

CULTURAL CERTIFICATES.

To Mr. A. Burns for Lælia Gouldiana, Calanthes, and Cypripedium Minos Youngii.

BOTANICAL CERTIFICATE.

Masdevallia gigantea, from Mrs. Gratrix.

A Gold Medal was awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for a magnificent group of winter-blooming Orchids, in which Cypripediums were particularly well represented, with a few other of the leading genera. Among certificated Orchids may be mentioned the handsome Læliocattleya Firminii, which gained both a First-class Certificate and a Silver Medal.

A large Silver Medal was awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), for a fine group, made up of well-bloomed Lælia Gouldiana, Calanthes in variety, and a number of choice Cypripediums. The group was further distinguished by the award of three Cultural Certificates.

Interesting exhibits were staged by Mrs. Gratrix, Whalley Range (gr. Mr. J. Howes); B. J. Beckton, Esq., Irlams-o'th-Height (gr. Mr. W. A. Stewart); the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall); and Mr. D. McLeod, Chorlton-cum-Hardy, the latter including a promising seedling from Cypripedium insigne Harefield Hall var. and C. Helen II. Mr. Crombleholme's group consisted of cut blooms of home-raised Cypripediums.

At the meeting held on January 22nd the members of Committee present were:—The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, J. C. Cowan, J. Cypher, J. Howes, A. Keeling, D. McLeod, W. Pickup, W. Shackleton, E. Tack, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Læliocattleya Schrœderæ Our Queen (Lc. bella alba × C. Maggie Raphael alba), Cypripedium memoria F. M. Ogilvie (Curtmannii magnificum × Pyramus), from S. Gratrix, Esq.

Cypripedium Olympus var. The Chairman (Leeanum Clinkaberryanum × Alcibiades), from B. J. Beckton, Esq.

Sophrocattleya Saxa var. flammea (S. grandiflora × C. Trianæ), from P. Smith, Esq.

Cypripedium Euryades Carter Place var., from T. Worsley, Esq.

AWARDS OF MERIT.

Cypripedium Elise magnificum (Hermes × Lady Dillon), and Cattleya Mendelii Diana, from S. Gratrix, Esq.

Cypripedium Virginia (aureum virginale × Farrieanum) from Mrs. Slingsby.

Cypripedium Glorita var. Purity (Actæus × Golden Glory), from T. Worsley, Esq.

CULTURAL CERTIFICATES.

To Mr. Burns, for Cypripedium aureum Hyeanum, C. Lathamianum Wrigley's var., and C. L. magnificum.

To Mrs. Slingsby, for Cypripedium Virginia.

A Gold Medal was awarded to Wm. Pickup, Esq., Great Harwood (gr. Mr. H. Mercer), for a large and excellent group of Cypripediums, Odontoglossums, and other hybrids, a Silver Medal being also awarded to the gardener for general culture.

A Large Silver Medal was awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), for a fine group of well-grown Cypripediums, three of which also gained Cultural Certificates.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a good group of Cypripediums, with examples of Sophronitis grandiflora, Masdevallia tovarensis, and others.

Interesting exhibits were staged by S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes); T. Worsley, Esq., Haslingden (gr. M. T. Wood); Mrs. Slingsby, Ticton Hall, Beverley, Yorks.; P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); B. J. Beckton, Esq., Irlams-o'th-Height (gr. Mr. W. A. Stewart); R. Ashworth, Esq., Newchurch (gr. Mr. Hough); Messrs. A. J. Keeling & Sons, Bradford; Mr. D. McLeod, Chorlton-cum-Hardy; and Mr. W. Shackleton, Bradford.

At the meeting held on February 5th, the members of the Committee present were: R. Ashworth, Esq. (in the Chair), Messrs. A. Burns, D. A. Cowan, J. C. Cowan, J. Cypher, J. Howes, J. McNab, D. McLeod, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Radium (G. F. Moore punctatum × Alcibiades superbum), a noble flower of perfect shape; dorsal sepal 3 inches across, striped with purple, and petals finely burnished; and Odontoglossum A. E. Thompson, a fine form of the illustrissimum type; flowers of good size; sepals and petals chocolate brown, white at the tips; and lip large, with front lobe pure white; from P. Smith, Esq.

Cypripedium Astarte (Psyche × insigne Sanderæ), from Mrs. Slingsby.

Cattleya Trianæ Mooreana, a large flower of perfect shape; colour dark mauve, petals heavily tipped deep magenta, and lip large, intensely dark, with yellow throat, from S. Gratrix, Esq.

AWARDS OF MERIT.

Lycaste Skinneri vars. alba Great Rex, Phœbus, and Crimson Glow; Odontoglossum Doris West Point var.; Cypripedium Perseus Queen Alexandra; Dendrobium dellense; and Sophrocattleya Saxa magnifica; from S. Gratrix, Esq.

Lycaste Skinneri var. His Excellency, and L. cruenta Bridge Hall var., from Mrs. Bruce and Miss Wrigley.

Odontoglossum crispum var. Pearl White, from P. Smith, Esq.

CULTURAL CERTIFICATES.

To Mrs. Slingsby, for Cypripedium Astarte.

To Mr. J. Howes, for Dendrobiums, and Odontioda Bradshawiæ Colossus.

A Gold Medal was awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for a magnificent group of winter-blooming Orchids, in which were many well-grown Cypripediums, Odontoglossums, Odontiodas Dendrobiums, Lycastes, and other good things.

Silver Medals were awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), and to F. A. Hindley, Esq., Bradford, for fine groups, the former consisting largely of Cymbidiums, Odontoglossums, varieties of Lycaste Skinneri, Ada aurantiaca, Lælia harpophylla, and others, and the latter of cut blooms of numerous choice Cypripediums.

Interesting exhibits were staged by P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Mrs. Slingsby, Ticton Hall, Beverley, Yorks; Messrs. Cypher & Sons, Cheltenham; Messrs. Hassall & Co., Southgate, and Mr. D. McLeod, Chorlton-cum-Hardy.

At the meeting held on February 19th, the members of the Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. A. Burns,

A. Coningsby, D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. Keeling, D. McLeod, J. McNab, Dr. F. T. Paul, W. Shackleton, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium memoria F. M. Ogilvie var. The Premier: after the style of a huge C. Hera-Mostyn, with heavier spottings on dorsal (3 inches across), bolder petals (almost 2 inches in width) and richer colouring (it differs from the F. M. Ogilvie which received the F.C.C. on January 22nd, the latter following Mrs. Mostyn in the colouring of dorsal, having no spots, but a suffused vinous red); a Gold Medal being also awarded; Cattleya Snowdrop (intertexta alba × O'Brieniana alba), a large pure white flower of perfect shape, with yellow throat; Odontoglossum crispum West Point Monarch, a grand blotched form: Dendrobium Sir Frederick Moore, resembling a very fine rich dark D. Rubens. D. Samuel Gratrix, of good shape and substance, pale pink shading to pale yellow, with dark maroon lip; from S. Gratrix, Esq.

Cattleya Trianæ The Baron, a large flower; sepals and petals very broad and pure white, and lip large, having a pinkish tinge, from P. Smith, Esq.

Dendrobium Schultzei, a splendid form, pure white, with green throat, Captain W. Horridge.

AWARDS OF MERIT.

Dendrobium nobile Gibsonii, Odontoglossum percultum Black Knight, Lycaste Skinneri roseo-alba, Odontoglossum crispum vars. Virgin Queen and White Lady; from S. Gratrix, Esq.

Lycaste Skinneri ingens, from Mrs. Bruce and Miss Wrigley.

Odontoglossum Rayonatum and Cymbidium Diana Bolholt var. from Captain W. Horridge.

AWARDS OF APPRECIATION.

Odontoglossum ardentillus Perfection, and O. crispum Pink Pearl, from S. Gratrix, Esq.

Odontioda Royal Gem Bolholt var., from Captain W. Horridge.

A Gold Medal was awarded to S. Gratrix, Whalley Range (gr. Mr. J. Howes), for another brilliant group, in which Dendrobiums in great variety, with choice Odontoglossums, the exceptional Cypripedium memoria F. M. Ogilvie, and others were conspicuous.

Silver Medals were awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns); Capt. W. A. Horridge, Bury (gr. Mr. Coningsby); and to Messrs. Cypher & Sons, Cheltenham, for fine groups.

Interesting exhibits were staged by P. Smith Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson), and to Sir. Herbert Leon, Bart., Bletchley Park, Bucks. (gr. Mr. W. W. Field).

ORCHID NOTES AND NEWS.

THE meetings of the Royal Horticultural Society for the current period are March 9th and 23rd, and April 13th and 27th, when the Orchid Committee will meet at 11.45 a.m. There will be only one meeting at the Royal Horticultural Hall, Westminster, during May, the date being the 11th, but the Great Spring Show at Chelsea will open on June 1st, and be continued on the two following days.

The corresponding meetings of the Manchester and North of England Orchid Society are fixed for March 4th and 18th, and April 1st and 15th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The last meeting of the current session is fixed for May 6th, when the Annual General Meeting will be held, and the winners of the various competitions of the session declared.

TWIN-FLOWER OF EULOPHIELLA ELISABETHÆ.—A twin flower of this interesting Madagascar Orchid has been sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill, by Mr. F. W. Thurgood. The two pedicels are fused together, but the two lips and columns are distinct and placed side by side, while there are four petals and five sepals, one of the latter being unusually broad, apparenting represently two confluent into one, which would complete the number of parts. Mr. Thurgood remarks that the flower was very attractive when at its best.

CATTLEYA PAULINE.—This is an interesting hybrid derived from the dwarf Cattleya Walkeriana × C. Dowiana aurea, which flowered last autumn with Messrs. J. & A. McBean, Cooksbridge. It will be interesting to see what the plant develops into at another time of flowering.

ANTWERP FLOWER SHOW.—In connection with the Antwerp Exhibition and Olympic Games, to be inaugurated by the King and Queen of the Belgians, a series of International Flower Shows will be held from May to October of the present year. A great Floral Hall is being erected in the most beautiful part of the Exhibition grounds, and this will be surrounded by gardens typical of various nations. The Committee, which includes horticultural experts from many countries, invites the co-operation of British horticulturists. Full particulars can be obtained from Mr. John Bellham, 303, High Holborn, London, W.C.1.

ORCHID CONFERENCE AT BOSTON, U.S.A.—In connection with a show of Orchids to be held at the Horticultural Hall, Boston, a Conference will be held, the programme being as follows:—Basis of Orchid Classification,

by Mr. Oakes Ames; Geographical Distribution of Orchids, by Mr. E. H. Wilson; History of Orchid Cultivation in the United States, by Mr. W. A. Manda; Collecting Orchids, by Mr. John E. Lager; and History of Orchids in England, by Mr. G. I'Anson. In connection with the Show a meeting is to be held on March 25th, to discuss the formation of an American National Orchid Society, a movement which has been contemplated for a considerable time. It is hoped that the meeting will be fully representative, and that the necessary support will be forthcoming. There are many enthusiastic Orchidists in the States, but considerations of distance have rather handicapped the formation of a society, as we learn from an esteemed correspondent there. We hope to receive further particulars.

CYMBIDIELLA HUMBLOTII.—It is interesting to note that a plant of this rare Madagascar Orchid is now throwing up a good spike at Kew. It is grown in a shallow basket and suspended from the roof of the Nepenthes house.

At a meeting of the Linnean Society to be held on May 6th next, at five p.m., a paper will be read by Mr. Edward J. Bedford, on British Marsh Orchids and their varieties, the paper being illustrated by coloured drawings and lantern slides.

SOPHRONITIS CROSSES.—The object of raising Sophronitis hybrids is to combine the brilliant scarlet colour of S. grandiflora with the larger flowers and stronger habit of the other parent. Mr. J. M. Black, of the firm of Flory & Black, Orchid Nursery, Slough, who has had much experience with this particular group, both there and previously when with Mr. R. G. Thwaites, at Streatham, writes: "We get a series of very beautiful tints in secondary Sophronitis hybrids, but we can hardly claim to have yet produced the scarlet Trianæ or labiata. The variation in seedlings out of the same pod is almost endless, and a curious fact about the plants is their strength. They are slow-growing for the first few years, and then they grow rapidly into big plants, when their quality can be fairly judged. They will throw up flowers on plants little larger than the Sophronitis parent, but this precociousness should not be imposed upon, nor the results judged too hastily. We have plants as large and as strong as the Cattleya and Lælia parents, if not larger and stronger, and plants that have the intention of building up a physique like this will not flower with anything approaching their true character when very small, although the instinct to flower is there. If the quality is there it can be brought out by good culture, but some of them have lost a good deal of the original Sophronitis character, and mere size and strength will not compensate for this." We

suggest that in some cases re-crossing with the original Sophronitis grandiflora might be tried, so as to get more of the scarlet into the numerous beautiful Sophrocatlælias now in existence.

CLASSIFICATION OF HYBRIDS.—Has any good method of classifying hybrids been discovered? Something is badly needed to check the present lamentable state of confusion, which is fast building a new Tower of Babel. Why must a white Odontoglossum armainvillierense be called O. ardentissimum, as in some English lists, when the French name is several years older? One does not know how to label it before exhibiting it. It is only one of scores of differences which ought to be avoided. Some of the differences are quite inexcusable, for there is no need for such variations as Brassocatlælia, Brasso-Lælio-Cattleya, and Brassolæliocattleya for the same thing, and they are regularly appearing.—*Entente Cordiale.*

CYMBIDIUM ARIEL.—A new and distinct hybrid from the collection of G. Hamilton Smith, Esq., Leigh Woods, Bristol, the parents being C. Veitchii × Ballianum. The flower sent, which is one of a spike of six, is most like C. Ballianum in size and shape, and the sepals and petals are uniformly light yellow, while there is a red-purple stain along the centre of the lip, and on the side lobes, and a few obscure dots in front. The front of the column is red-purple. It is the first hybrid from C. Ballianum, and Mr. Hamilton Smith remarks that while many recent hybrids have much in common, the present one constitutes something of a break away as regards colour, shape and size.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

G.W.—Odontocidium Edwardatum, a hybrid between Oncidium serratum and Odontoglossum Edwardii, most like the former in habit and the latter in colour.

C.W.P.—Many thanks. N. 142 is Odontoglossum cariniferum, Rchb. f., and it is interesting to see it again from the original locality. Letter follows.

G.E.D.—The earlier Odontoglossum Ernestii is from O. triumphans and O. Adrianæ (see *O.R.*, xv. p. 158).

Photograph received, with thanks.—Mrs. J.J.N.

W.B.S.—Please send an example of each of the species that grow together. Probably Orchis incarnata is among them. The flowers are pink, and expand a few days earlier than the others.

In reply to several correspondents, we have at last been able to arrange for some binding cases, but at greatly increased cost. We see no possibility of a return to pre-war conditions at present with such an enormous increase in the cost of paper and printing, but we suggest that the 1919 and 1920 volumes might be bound together. We shall rely upon the help and co-operation of our readers under the difficult conditions.

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OUR NOTE BOOK.

THE remarkable Odontonia Pittiæ, figured at p. 41, affords a good illustration of the progress that is being made in hybridisation. The object behind the cross was to produce a hybrid better adapted to a warmer climate than are the cool Odontoglossums, which do not succeed well in many localities in the United States. Miltonias are Intermediate house Orchids, in fact M. Roezlii, one of the parents of M. Bleuana, succeeds best in a Warm house, which is probably one reason why it is so much less grown than M. vexillaria, and is seldom seen in first-rate condition. Of course, there are several other combinations with Miltonia which will be available in carrying the experiment further, and among them the brilliantly-coloured Miltonioda Harwoodii, but time alone will tell whether it is possible to retain both the Miltonia constitution and the beautiful Odontoglossum blotching. Odontonia Pittiæ came rather as a surprise, and it is doubtful if its parentage would have been guessed without the record, for in shape and markings, especially of the lip, it rather recalls some big violet-blue Warscewiczella. The shape evidently came largely from the Miltonia parent, as may be seen on comparison with a figure of that given at p. 81, but the colour and markings came from Odontoglossum Harryanum, which has yielded some remarkable developments at the hands of the hybridist. It will be interesting to see what the plant develops into when it becomes stronger.

Hybridisation among Orchids is making enormous strides, and in several groups is progressive in the best sense of the word. One contributory cause of this is that the hybrids themselves are fertile, with comparatively few exceptions, and no sooner is some good hybrid raised than it is again pressed into the service, and becomes the progenitor of further improvements. Of late years this has been especially the case with Odontoglossum and Odontioda, which are witnessing some remarkable developments, in spite of the difficulty still found in germinating the seed. The Cattleya group is also being improved in a remarkable way. Albino Cattleyas,

purple and yellow Læliocattleyas, the fringed Brassocattleyas and Brassocatlælias, and the rich scarlet colour of Sophronitis grandiflora which is carried on in the Sophrocattleyas and Sophrocatlælias are all evidence of the march of progress. It will be a long time before Orchid culture languishes through stagnation.

In spite of the War and the continued abnormal conditions, the work of hybridising has been carried on, and in many establishments there are numerous batches of choice seedlings which are gradually progressing towards the flowering stage, and producing something of note at almost every horticultural meeting. It will be interesting to see what our next great meeting at Chelsea will be like, and with fine weather a brilliant Show may almost certainly be expected.

THE BRITISH MARSH ORCHIDS.—At the meeting of the Linnean Society held on May 6th, Mr. Edward J. Bedford showed a series of thirty exquisite water-colour drawings from British Marsh Orchids, with their numerous varieties and hybrids, further illustrated by 70 lantern slides from his photographs of the growing plants *in situ*, with enlarged views of the lip, front and side view. Mr. T. A. Dymes also exhibited a series of seed capsules, remarking on the characters afforded by the fruit and seeds. As we have several correspondents who are interested in this group, and the plants will again be in bloom, we hope to receive examples of the rarer kinds, and especially the hybrids, with notes of any that grow intermixed. On looking over the plants on the Kew rockwork we note that one of the plants brought from West Drayton is throwing up a spike, also the two hybrids from O. foliosa and O. maculata, while that between O. latifolia and O. maculata, with O. latifolia Glasnevin var. and the Madeiran O. foliosa, all promise to make a fine show. The five plants of Orchicœloglossum mixtum are all producing spikes, and it is interesting to note that in this stage all are strongly spotted with brown, thus removing any element of doubt about Orchis maculata being one of the parents. The spots become more obscure by the time the flowers are expanded. Our own little collection has eight plants in spike from different sources with clear green leaves, these in one case being very narrow, with several O. maculata from two localities and examples of O. foliosa. Some notes will appear later; our desire now is to call attention to the subject in time for the present season.

MICROSTYLIS CALOPHYLLA, Rchb. f.—This pretty variegated-leaved Orchid has again appeared in cultivation, a Microstylis sent to Kew from the Singapore Botanic Garden, by Mr. I. H. Burkill, having just flowered, proving identical with the one described by Reichenbach over forty years ago (*Gard. Chron.*, 1879, ii. p. 718). The author then remarked: "This is

a very pretty foliaged plant, lately introduced, as it would appear, from Dutch India. It was exhibited at Amsterdam in April, 1877, by Messrs. Groenewegen, in beautiful condition. Then it appeared with Messrs. Makoy, Veitch, Bull (I name in order as I received specimens)." Fortunately, Mr. J. Day made a painting (*Orch. Draw.*, xxvii. t. 7). The date was August 1, 1880, and it is recorded as received from Mr. Bull, who imported it from Java or some other Malayan Island. With this drawing the Kew plant is identical. It is suspected to have come from some locality in the Malay Peninsula. Mr. Ridley (*Fl. Mal. Penins.*, i. p. 13) records it from the Penang Rifle Range (Curtis), also from Pegu and Siam. The Pegu plant, however, belongs to the allied M. Scottii, Hook. f. (*Bot. Mag.*, t. 7268), which Mr. Ridley makes synonymous. There is also a record of M. calophylla as collected at Penokok, Kinabalu, at 3000 feet altitude, by Dr. Haviland (*Journ. Linn. Soc.*, xxxi. p. 263), but this we have not seen, a remark which also applies to the Siam plant. Reichenbach gave no locality. The leaves of M. calophylla are sienna brown, with a broad silver grey band near the margin, on which are numerous brown dots. The lip of the flowers is light green, with a bidentate apex and a pair of long basal auricles. A second species which came with the above has purple leaves, but its identity is uncertain until it blooms.—R.A.R.

NOTES ON A TRIP TO CHIRIQUI.

I LEFT Panama City, accompanied by my friend, Mr. A. A. Hunter, of Balboa, on the Cattle Ship "David," for the port of Pedrigal—the entreport of David, capital of the Province (State) of Chiriqui, Panama, the object being to collect Orchids. We were compelled to go by cattle ship, because the passenger ship on this run was sold to the French Government during the war. It was used by them for a transport, and has not yet been replaced by another. After 2½ days of uncomfortable travel, we arrived at Pedrigal, aud from there we went by rail over a narrow guage railroad—which has deteriorated almost out of existence for want of business during the war, and has not yet been repaired—to Boquette, at 3,500 feet elevation. This road is built on a grade of a little over 100 feet to the mile, and our travel was not very rapid. An amusing incident occurred on this trip. At about 3000 feet elevation, while passing over the plains, we saw Hexisia bidentata in full flower everywhere on scrub trees out in the full sun. A magnificent bunch evoked my unbounded admiration, and my friend, Mr. Hunter, jumped from the train, ran out to the tree, got the bunch, and caught up with the train again. This will give you some idea of our speed.

Arriving at Boquette, we took horses and went to Lino (elevation 4000

feet by the Aerenometer), on the banks of the Caldera River, where we made our headquarters. From there, riding or walking the hills and valleys in all directions, we covered the territory selected for exploration. I suspect that Lino is the spot Warscewicz made his headquarters, as it is the only place on the Caldera river at 4000 feet elevation. Not many plants were in flower while I was there, many having flowered out, and many were in flower spike, but not fully developed.

Having before me the list from the *Biologia Centrali-Americana*, which you kindly sent me, I can say that Warscewicz did not get one-third of the Orchid flora of Chiriqui. A peculiar condition seems to maintain there—every hill, valley or river bank seems to have its own series of plants, distinct from the others, though, of course, some were found universally. I procured many handsome plants which I did not possess before—I cannot yet say how many, but estimate them at some 50 or more—and I believe that I have now procured most of these listed by Warscewicz, and many more. I brought back with me eleven crates of plants, and have been very busy staging them. From these you will ultimately receive botanical specimens as they come into flower.—C. W. POWELL, Balboa, Canal Zone, Panama, March, 1920.

Six interesting views are enclosed by Mr. Powell, Bouquette Village, at 4000 feet elevation, pleasantly situated in the Bouquette Valley, through which the Caldera River runs; a native hut with eight residents; a view overlooking Bouquette Valley from Lino Rock, a bare pinnacle of rock, on top of one of the hills; looking towards Chiriqui from Lino; Narajos Valley—this and the last showing the Log Slide, 4500 feet, and Chiriqui Volcano in the distance; and Narajos and Lino from Log Slide, with scattered farm houses. They give a graphic idea of the locality, and show the Chiriqui Volcano, estimated at 12,000 feet altitude, as the highest peak of a long mountain range.

The list of Panama Orchids mentioned above contains 104 species. It was based chiefiy on Reichenbach's earlier Orchideæ Warscewiczianæ, the exclusion of a few non-Panama species being about balanced by subsequent additions. From an introductory note we learn that "Orchideæ are plentiful in the vicinity of the rivers, where the trees are literally loaded with them. The vanilla climbs in abundance up the stems of young trees, and often increases so much in weight as to cause the downfall of its supporters."

As to Warscewicz's localities, we should judge that he collected up to near the summit of Chiriqui, for altitudes are cited from 1000 right up to 10,000 feet, though few other details are given. When the plants mentioned by Mr. Powell have been worked up we anticipate some interesting additions to the flora.

ORCHIDS AT LANGLEY, SLOUGH.

IT is now over six years since the old-established Orchid Nursery of Messrs. James Veitch & Sons, situated at Langley, Slough, was taken over by Messrs. Flory & Black, and the other day we had the opportunity of renewing an earlier acquaintance. It is the lineal descendant of the famous old Chelsea establishment, the Orchid hybrids having been transferred to Langley about a quarter of a century ago in order to escape from the too-prevalent London fogs. We remember it when there were only three houses, which grew into four, and ultimately to eight, which are filled with a large stock of choice hybrids in every stage of development, room being also found for a few interesting species. Messrs. Flory & Black specialise in Cattleyas, Brassocattleyas, and the numerous Sophronitis hybrids, of all of which there is a very fine stock. There are also many Læliocattleyas, Odontoglossums, and Odontiodas, with a few Cypripediums, Disas, and others, the main object of the establishment being the improvement of the races of garden hybrids.

The first house visited was mainly devoted to Cattleyas and Brasso-cattleyas, mostly of flowering size, with a few in bloom, among the latter being plants of the brilliant C. Empress Frederick, and the white C. Mossiæ Wageneri intertexta, and C. Dusseldorfii Undine × Mossiæ Wageneri in several examples. Much attention is being paid to albino forms, and we noted a promising batch of C. Dusseldorfii Undine × Warscewiczii alba F. Lambeau, one of which flowered last year and was called C. The Bride. As showing work on definite lines we may mention C. Hardyana alba × Dowiana aurea, and Brassocattleya Ilene × C. Dowiana aurea, one of which, Bc. Rosita, has already flowered. A batch between two certificated varieties of Cattleya Tityus, Rex and Blenheim var., was specially interesting, because the cross practically fulfils the conditions necessary for a self-fertilised hybrid. C. Tityus is from C. Enid (Mossiæ × Warscewiczii), and C. Octave-Doin (Dowiana × Mendelii), and thus is made up of the four fine species mentioned. The two varieties crossed came out of the same seed pod, so that no new factor is introduced, and it would be extremely interesting to record the character of all the seedlings as they bloom, so as to show the amount of variation and reversion. We saw a painting of each parent, and may note that Rex has very broad segments, and a large clear yellow disc with the eye-like blotches of C. Warscewiczii, while Blenheim var. has narrower more curved petals, and a much-veined disc to the lip, as in C. Mossiæ. There is a fine batch of seedlings from the cross.

The next house was devoted to Sophronitis hybrids, a most remarkable lot in every respect, and some as strong as the Cattleya parent. Several very interesting crosses were pointed out, among them Cattleya Dowiana aurea × Sophrocattleya Saxa, and Sophrocattleya Doris × C. Dowiana aurea, which latter gives Sc. Dorea. Of Brassocattleya × Sophrocattleya some very vigorous plants were noticed, one of which, Rolfeara Ceres, has already been exhibited. A good plant of Sc. warnhamensis was very noticeable, being much like a dwarfed C. amethystoglossa (one of the parents) in habit. Two brightly-coloured things were in bloom, with two and three flowers, but we omitted the name. A long list of crosses might be enumerated did space permit, but one thing which we ascertained is that no re-cross with Sophronitis grandiflora has ever been made. Such a cross should be extremely promising if a hybrid of good constitution with plenty of scarlet in the flower were selected. Instances were pointed out of the seedlings remaining small for some time and then throwing up strong bulbs as they approach flowering size, and it was remarked that the proportion of really good things is rather small, averaging perhaps one in six.

We now came to a house of smaller seedlings, in fact we saw every stage upwards from the tiny green globules, stranded, as it were, in the cavities of the canvas on which they are sown, a sight which recalled our first visit to Chelsea, over thirty years ago, when we made Mr. Seden's acquaintance. We noted sturdy little batches of Cattleyas and Cypripediums, and remarked on the amount of space they would require as they reached flowering size —always a problem where much hybridising is carried on. Among other promising seedlings we noted batches of C. Suzanne-Hye × Warscewiczii alba F. Lambeau, the clear green colour denoting the albinism; C. Mossiæ Wageneri, C. Œnone alba, and C. Suzanne Hye, all three crossed with the white C. Lueddemanniana Empress, C. Rhoda × triumphans, C. Tityus × Mendelii, C. Fabia × Brassocattleya Leemaniæ (Bc. Dietrichiana) Læliocattleya Thyone × C. Dowiana aurea, Lc. Soulange × C. Rhoda, Lc. luminosa × Sophronitis grandiflora, and numerous other choice crosses in various stages of development, and all in excellent health.

Passing into another house we noted plants of Cypripedium Venus and various others, though not now in bloom, with a few Dendrobiums, and a lot of Cattleyas of flowering size, among them a number of whites. Those in bloom included the fine Cattleya Empress-Frederick, C. Magali-Sander (Mossiæ Wageneri × Dusseldorfii Undine), a charming albino, and Lc. Ceres × C. Fabia. Those in bud and sheath must be passed over, and doubtless some of them will appear at the R.H.S. coming Spring Show. A batch from C. Dowiana aurea × Lc. luminosa aurea should prove good.

In the Cool house a good number of Odontoglossums and Odontiodas were in bloom, with many others in spike, among the former being one

called O. crispum nigrescens, of the Black Prince type, several of them in bud being easily picked out by their dark colour. Unfortunately the origin is uncertain, as the seed parent was purchased as a plant of unknown parentage, but in two that were expanded the influence of O. Hunnewellianum could be traced, probably through some form of O. Adrianæ. O. Rolfeæ × Hunnewellianum was also pointed out, being a spike of light yellow flowers blotched with brown. The seedlings were an interesting lot, and persevering efforts have been made for a long time to get over the difficulty of raising them with certainty, though with the common experience of only partial success. Some were germinating on the compost of the parent plants, and there were tiny globules in various stages, though others had made no progress. We were also shown a number of glass tubes which had been prepared and sterilised after the approved methods, but the seeds did not germinate after sowing, so that the old method was the most successful. Other seedlings had been pricked off and were in various stages up to flowering size. The Disas were an interesting lot, and we saw an example of D. Italia with four flowers, and a good batch of seedlings obtained from this Disa recrossed with D. grandiflora, the attempt to obtain a plant with the vigour of D. Luna and the colour of D. grandiflora having been carried forward another stage. Disas were thriving well at one end of the Odontoglossum house, and D. Luna was in bud. D. sagittalis grows very freely here, and there were over a dozen spikes of its pretty white flowers. An interesting little Japanese Orchid was pointed out which we have not previously seen alive, namely Gymnadenia rupestris, of which there were several spikes, and the Orchis-like, lilac flowers just beginning to open.

The remaining houses were filled with growing stock, largely hybrids of the Cattleya group, in the most robust health, and a good number were showing for flower, with a few already expanded. Among the latter were examples of the richly-coloured Læliocattleya Dominiana, Lc. H. T. Pitt (Lc. bella × C. Enid), a very showy hybrid, Lc. Aphrodite, C. Suzanne Hye, examples of Maxillaria Sanderiana, Pleurothallis Birchenallii, near P. scapha but darker in colour, Masdevallia calura and O'Brieniana, and other interesting things.

The plants are grown on open stages, with leaf mould and other moisture-retaining materials on a solid stage beneath, and the whole stock is clean and in excellent condition. It is interesting to record that there is no scale in the nursery, and this is necessarily accompanied by the condition that any new plants have to undergo a period of quarantine to prevent the re-introduction of the pest. Messrs. Flory & Black must be congratulated on the excellent condition of the plants generally, and on the efforts they are making to maintain the reputation of this pioneer establishment. The work is being continued on progressive lines, and the constant

care taken in the selection of parents is sure to be followed by a crop of good results. There are several experiments in progress which we shall watch with interest, in addition to those mentioned, the results of which we hope to be able to record in the future.

GENERIC HYBRIDS THIRTY-THREE YEARS AGO.—When turning over the pages of an old volume the writer came across the following, which may be of interest, for the remarks are still as appropriate as when written.—G.S.

BIGENERIC ORCHID HYBRIDS AT THE LINNEAN SOCIETY.—The results of hybridisation in this Order have been so remarkable that it was not likely they would long escape attention from a scientific standpoint. A paper on the subject was read at the meeting of the Linnean Society on May 5th by Mr. R. A. Rolfe, A.L.S., of the Kew Herbarium. The author treated the subject chiefly with reference to its bearing upon classification, and with regard to hybrids generally came to the following conclusions: (1) Hybridisation may take place not only between distinct species, but also between distinct genera; or between plants so structurally different as to be usually regarded as such. (2) These hybrids are generally of artificial origin, or accidentally produced, and cannot be treated in the scheme of classification either as natural varieties, species, or genera. (3) The possibility of hybridisation taking place between species hitherto considered distinct does not necessarily prove them to be merely forms of the same species. (4) The occurrence of a hybrid between two structurally different genera does not prove the necessity of uniting them in one; nor can such hybrids be arbitrarily referred to either of the two parent genera. (5) Species, and genera too, will always have to be dealt with in the scheme of classification according to their structural peculiarities and differences, without reference to the possibility of hybridisation taking place between them. After showing bigeneric hybrids to be always more or less intermediate between the two parents, the author recommended that the plan advocated in these columns (1872, p. 358), of compounding a name from those of the two parent genera, should always be adopted. He then proceeded to deal with existing bigeneric Orchid hybrids on these lines, proposing Phaiocalanthe, Anœctogoodyera, Læliocattleya, Sophrocattleya, and Zygocolax. The paper was illustrated by a number of interesting specimens from the Nursery of Messrs. James Veitch & Sons, and from Kew.—*G.C.*, 1887, i. p. 646.

We had forgotten the note, and it is interesting to find the names given in their original form, without a hyphen and a second capital, the latter an innovation that is now discountenanced by the rules. Instead of Anœctogoodyera, however, one must read Anœctomaria, Dossinimaria and Macomaria, and the slip probably arose from the fact that the original records are under Anœctochilus and Goodyera.—ED.

ODONTOGLOSSUM SCOTTIANUM VAR. MOGUL.

AMONG the numerous brilliant Odontoglossums which have appeared during recent years, O. Scottianum var. Mogul, the one here figured, occupies a leading place. It was derived from O. oakwoodiense × O. armainvilierense, and was awarded a First-class Certificate by the R.H.S. in April, 1914, when exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). There is a little uncertainty about the origin of O. oakwoodiense, but it is believed to be either a form of O.

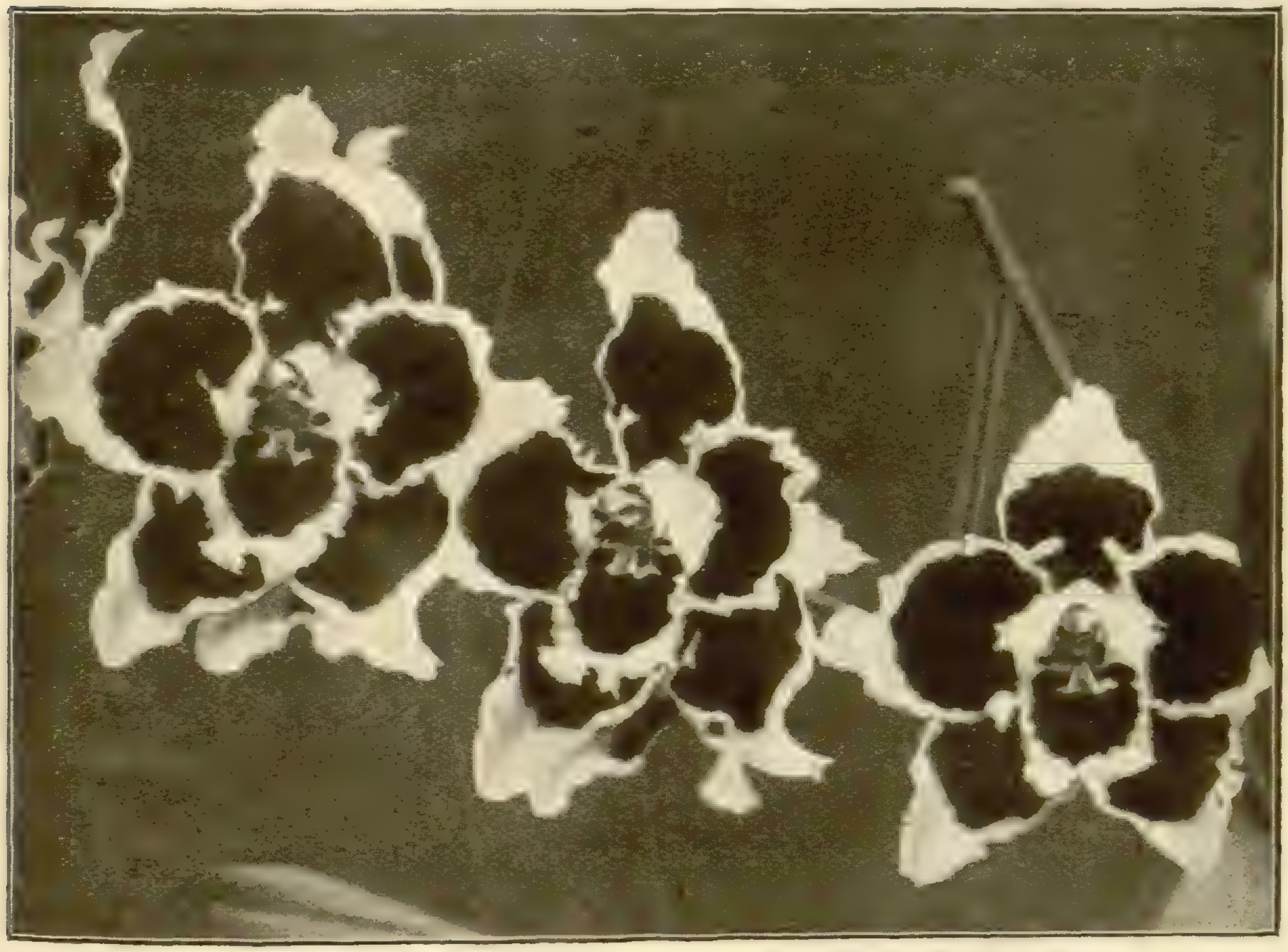

Fig. 8. ODONTOGLOSSUM SCOTTIANUM VAR. MOGUL.

Wilckeanum or a hybrid from it, but the cross with O. armainvillierense produced the most remarkable variation, as we saw in the original batch at Messrs. Charlesworth's. Some were like spotted O. armainvillierense, some like plain O. Pescatorei, one strongly recalled a good white O. crispum, and others showed the influence of O. luteopurpureum, both in the yellow ground colour and the brown markings. The present one has most of the armainvillierense shape, with a clear white ground colour, which forms a broad margin round the solid claret-purple blotch which occupies each segment, giving a very striking effect. The influence of O. Pescatorei is also seen in the shape and details of the lip and wings of the column.

CALENDAR OF OPERATIONS FOR MAY-JUNE.

By J. T. BARKER, Orchid grower to His Grace the Duke of Marlborough, Blenheim Palace, Woodstock, Oxon.

WITH the advent of May we may safely assume that more genial conditions will prevail, and the summer treatment of Orchids should commence. The plants have already responded to the increased light and sun heat of the past few weeks, and in each division have now commenced to grow freely. Every inducement should be given them to continue, so that they may build up strong healthy pseudobulbs by the end of the growing season. The temperature should now be raised a few degrees in each department, and during bright weather will attain the maximum for the year. This is to the benefit of the warmer divisions, but Cool house Orchids are soon injured by excessive heat, and during hot weather must be kept as cool as possible by the use of a greater amount of humidity, and the judicious use of the ventilators and blinds.

ATMOSPHERIC MOISTURE.—The advancing power of the sun and the general increase in temperatures necessitates the use of more moisture in the houses, not only to make those conditions which are so essential to satisfactory growth, but as a preventative against insect pests, which soon increase rapidly in a dry atmosphere. Unsuitable conditions bring their respective troubles, and a proper balance between heat and moisture must be maintained to secure the best results. It will easily be observed by anyone if the proper conditions are being maintained, for when the houses feel uncomfortable to the cultivator it is the same to the plants. Everything depends upon the conditions made for the plants, hence the necessity of close attention to what might otherwise appear a small matter. Spraying and syringing may now be indulged in on bright days, but only soft, tepid water should be used for this purpose. Care should be taken that the leaves have time to dry before night.

WATERING must be done at all times with care, as so much depends on the individuality and condition of the plant. The danger of over-watering is hardly present at this season, when growth is active and the compost full of roots, but at other times an excess of water has the effect of killing the roots by souring the compost. On the other hand, an inadequate supply of water is a hindrance to free growth, and continual dribblings on the surface is most harmful. When water is applied, it should be sufficient to soak the compost through, and then the compost should be allowed to dry out thoroughly before it is applied again.

VENTILATION.—During hot weather the ventilation of the Cool house will need considerable attention, as the humidity of the atmosphere must be

maintained, so as to keep the temperature at the lowest possible point. The ventilation of the other houses must be so arranged that the plants may receive at all times a continual supply of fresh air without causing draughts, which no plant can thrive in. The bottom ventilators may be left partially or wide open at night, according to circumstances, thereby providing a sweet and healthy atmosphere at all times. Large houses are more difficult to manage in this respect than those of more modest dimensions. In the warmer divisions, it matters little how much the rise in temperature by sun heat may be, provided there is sufficient ventilation to balance it.

SHADING will now require much attention, as the blinds should only be let down when necessary, and this as a precaution against the foliage suffering from the excessive heat of the sun's rays. Some Orchids are naturally shade-lovers, while others love the sun, hence the necessity of ascertaining the individual requirements of the respective plants, and arranging them accordingly. The two classes require different treatment, and if success is to be attained the cultivator must use all his powers of observation to ascertain the likes and dislikes of his plants.

SUMMER QUARTERS.—Those plants which thrive best in a moderate and equable temperature the whole year round should be removed from the Intermediate house, where they have passed the winter, to the Cool house, where they may remain for the next few months. There are several species of Lælia, Dendrobium, Miltonia, Odontoglossum, Masdevallia, and other Orchids, which thrive under this kind of treatment. After removal, it is desirable to keep the plants for some little time slightly drier at the roots than they have been in the warmer division.

ANGULOAS.—These, sometimes known as Cradle Orchids, will be making new growth, and pushing up their flower spikes. When their flowering period has passed they may have attention as regards repotting, should they be in need of it, using a well-drained compost, similar to that used for the green-leaved Cypripediums. When repotting, keep the base of the young growths on a level with the rim of the pot, and place the material quite firmly. They succeed in the Cool house, or in cold districts do best in the cool end of the Intermediate house.

LYCASTES succeed under similar conditions to Anguloas, and when their flowers have passed over any necessary repotting may have attention, using a similar compost. Neglect of repotting when the compost is exhausted is injurious to all Orchids.

DENDROBIUMS.—D. Phalænopsis and D. formosum are useful autumn-flowering species, which should be repotted at once, if not already done. The best receptacles are shallow pans, and the plants thrive best suspended in a warm, moist structure, exposed to all the light possible, and they need only be shaded during the hottest part of the day. The cool growing D.

infundibulum and D. Jamesianum may also be given attention if a larger receptacle is required, or the compost is in a decayed or sour state. The evergreen section commences to grow at this season, and includes D. Farmeri, densiflorum, and the beautiful D. thyrsiflorum. Annual disturbance at the root is not advised for these, but when the operation is necessary this is the best time to carry it out. This section should be potted firmly, the mixture consisting of osmunda fibre, AI fibre, and sphagnum moss in equal parts. The deciduous section, if not already done, may also have attention, when the new growths attain a few inches in length and are about to push forth new roots. A clean, open compost, made up of AI fibre and sphagnum moss in equal parts, answers their requirements. While in active growth, a light position in a warm house should be chosen; but when the pseudobulbs are fully developed, they will take a season of rest in a slightly cooler and drier atmosphere.

CYMBIDIUMS are at the present time amongst the most popular of Orchids. As decorative plants they have few rivals, and as cut flowers they are most attractive. C. Lowianum, insigne, eburneum, and the many hybrids, will now be over, and potting may at once be taken in hand. Their chief requirement as regards compost is a nice open material in which good fibrous loam predominates. When well rooted, and in active growth, they require plenty of water, but should be kept rather on the dry side during the dull days of winter, and after repotting, until the new roots enter freely the new material.

CYPRIPEDIUMS.—C. niveum, bellatulum, concolor, and Godefroyæ will now be passing out of bloom, and if the compost has become loose, or has got into a sour state, repotting should be done. Speaking generally, these are difficult Orchids to keep in a vigorous condition, but I believe most failures can be attributed to keeping them much too dry during their season of growth. Potted in the usual Cypripedium compost, intermixed with a few small pieces of soft broken bricks, and made moderately firm they thrive admirably. Ordinary pots, well drained, make the best receptacles. The warm end of the Cattleya house, elevated up to the glass, out of the way of the syringe or sprayer, is an ideal place for them. Small seedling Cypripediums should be pricked off or potted into small pots as soon as they have attained sufficient size and strength.

ONCIDIUMS. — O. macranthum, serratum, undulatum, superbiens, monachicum, and zebrinum, as soon as they have finished flowering, also any that are not flowering this year, will be forward enough in growth to enable repotting to be done. On account of the length of time which the spikes are in developing, it is most essential that the plants should be in robust health, and that the compost is in good condition before allowing them to carry spikes. Weak spikes are not worth attention, and should be

removed, as if allowed to develop they may completely wreck the plants. A good compost for them consists of equal parts of fibrous peat, AI fibre, and sphagnum moss, with a fair proportion of half-decayed leaves added. The material should be used as rough as possible, according to the size of the plants, and be placed in the pots firmly. Newly-potted plants will not require much water for some time, but as growth and roots develop the amount may be considerably increased. They revel in abundance of fresh air, and the pseudobulbs made under its influence are much harder in substance, a very important point in the cultivation of all Orchids. Frequent overhead syringing is very beneficial during bright, hot weather, and is a great aid to keeping them clean.

CATTLEYAS AND ALLIES.—The spring-flowering section will now be pushing up their flowers, and it is advisable to place the plants where they may receive abundance of light and air. When in bloom the plants may be kept slightly drier at the roots, and the atmosphere slightly cooler and drier, which will keep the flowers longer in perfection. The repotting of plants which have blossomed, and are beginning to push roots at the base of the pseudobulbs should have attention. C. Warscewiczii (gigas) and C. Dowiana, with several of their hybrids, are now forming new growths, and should be placed well up to the roof-glass, where they may receive plenty of light and air. Although the plants may appear to be growing strongly, care should be exercised in watering, as an excess at this stage may do much harm. C. Trianæ and C. Schrœderæ, with many hybrid Cattleyas, Læliocattleyas, Brassocattleyas, and allied subjects that have recently passed out of bloom, may be repotted whenever they commence to make new roots. Any plants of C. Mossiæ and Mendelii which have failed to produce flower sheaths may have similar attention when they are about to push new roots. Those which have deteriorated through loss of roots, or other causes, may be repotted into small receptacles and started afresh. The pots should be well drained, and a well-cleaned compost used as previously advised for Cattleyas.

SOPHRONITIS GRANDIFLORA and its hybrids may be treated in precisely the same manner as Cattleyas when fresh rooting material is required, but the dwarfer ones must be placed in smaller receptacles, and the potting material pulled into smaller pieces. They are best grown suspended close to the glass, and now comprise plants of a most varied character.

ODONTOGLOSSUMS.—O. citrosmum and O. Uroskinneri may be repotted as they pass out of bloom. The pots should not be too large, and the drainage must be perfect, the pots being quite half filled with clean crocks. The usual Odontoglossum compost is quite suitable, and the plants must be potted firmly. O. citrosmum thrives suspended quite close to the roof of either the Cattleya or Mexican house, and O. Uroskinneri will succeed best

at the warm end of the Cool house. Plants of O. Rossii, Cervantesii, Humeanum, and Œrstedii, that recently passed out of flower, should be suspended close to the roof-glass, and be afforded just enough water to prevent the pseudobulbs from shrivelling. An excess of water whilst at rest will cause the roots to decay. When new growth commences any necessary repotting can be done. Odontoglossum grande, having had a good rest, is now about to push new growth, and may have attention just as the young roots show at the base of the growths. As this plant makes thick fleshy roots, the material should be used in as rough pieces as possible, and be made moderately firm.

GENERAL REMARKS.—Before the issue of another number of the *Orchid Review* many of us will again make the journey to the Chelsea Show, where we hope to meet many continental friends, and take part in what we hope may again be an annual reunion of worshippers of the fair goddess Flora.

THE BOSTON ORCHID SHOW.

THE Massachusetts Horticultural Society held a Show of Orchids and Spring plants at the Horticultural Hall, Boston, U.S.A., from March 24th to 28th last, which the *American Florist* of April 3rd reports was a brilliant achievement, both culturally and for artistic arrangement. Orchids were the predominating feature, and the exhibits of A. C. Burrage, of Pride's Crossing, Mass., were lavish in variety, splendidly grown and staged. They included many rare species and varieties, and a considerable number were arranged on trunks of trees in imitation of their native conditious. Other private growers contributed good though less comprehensive exhibits, and the commercial section showed up well, specially noteworthy being the extensive displays of the Julius Roehrs Co., of Rutherford, N.J.

AWARD LIST.

Group of Orchids, arranged for effect with ferns and foliage plants, covering 250 square feet (commercial growers).—Julius Roehrs Co.

Group of 200 square feet (private growers).—Albert C. Burrage. (An illustration of this fine exhibit is given in the issue in question).

Group of 100 square feet (open).—Albert C. Burrage.

Most artistically arranged of the preceding groups.—Albert C. Burrage.

Twelve Orchids in bloom, distinct species or varieties of not less than six genera.—1, Julius Roehrs Co.; 2, J. T. Butterworth.

Six Orchids in bloom, distinct species or varieties, of not less than three genera.—J. T. Butterworth.

Three Orchids in bloom, of separate genera.—J. T. Butterworth.

Six Cymbidiums, distinct.—1, Albert C. Burrage; 2, J. T. Butterworth.

Twelve Cypripediums, distinct.—1, E. B. Dane; 2, J. T. Butterworth.

Collection of Cypripediums in bloom, not less than 50 plants or 25 species or varieties.—Ernest B. Dane.

Six Dendrobiums in bloom.—J. T. Butterworth.

Six Phalænopsis, in bloom, not less than three species.—A. C. Burrage.

Specimen Cattleya Mossiæ, and C. Schrœderæ (both).—A. C. Burrage.

Specimen Cattleya Trianæ.—1, Albert C. Burrage; 2, J. T. Butterworth.

Specimen Cœlogyne in bloom.—Mrs. C. G. Weld.

Specimen Lycaste in bloom.—1, J. T. Butterworth; 2, Miss Cornelia Warren.

Specimen hybrid Cattleya.—1, Julius Roehrs Co.; 2, J. T. Butterworth.

Specimen Brassocattleya in bloom.—Edwin S. Webster.

Specimen Læliocattleya in bloom.—J. T. Butterworth.

Specimen of any other bigeneric hybrid in which Cattleya or Lælia is one parent.—J. T. Butterworth, with "Lælia," presumbly Læliocattleya, Aroona.

Specimen Cymbidium.—1, Julius Roehrs Co.; 2, Walter Hunnewell.

Specimen Cypripedium.—1, Ernest B. Dane; 2, Mrs. C. G. Weld; 3, Faulkner Farm.

Specimen Dendrobium nobile in bloom.—1, Miss Cornelia Warren; 2, Julius Roehrs Co.; 3, J. T. Butterworth.

Any other Dendrobium.—J. T. Butterworth, with D. Jamesianum.

Specimen Miltonia in bloom.—Albert C. Burrage.

Specimen Odontoglossum in bloom.—1, Julius Roehrs Co.; 2, Ernest B. Dane; 3, J. T. Butterworth.

Specimen Odontioda.—1, Albert C. Burrage; 2, Julius Roehrs Co.

Specimen Oncidium in bloom.—Albert C. Burrage.

Specimen Vanda in bloom.—1, Edwin S. Webster; 2, J. T. Butterworth.

Any other genus.—J. T. Butterworth, with Epicattleya Orpetiana.

Silver Medals were awarded to Cattleya speciosissima Empress, from Julius Roehrs Co.; Dendrobium Wardianum album, from J. T. Butterworth; Sophrocattleya Thwaitesiæ, from Ernest B. Dane; and for a display of Orchids, from Thomas J. Roland.

A dinner was given in honour of the opening of the Orchid Show in the evening of March 24th, by the horticultural interests of Boston, to which all visiting members of the craft were invited, while on Friday afternoon William C. Endicott, President of the Massachusetts Horticultural Society, gave an informal luncheon to exhibitors and other guests. Among those present was Miss Eileen Low, daughter of Stuart H. Low, London, Eng.

The following papers were read at the Orchid Conferences, held in the Lecture Hall, on Thursday, Friday, and Saturday afternoon: "Basis of

Orchid Classification," by Oakes Ames; "Geographical Distribution of Orchids," by E. H. Wilson; "History of Orchid Culture in the United States," by W. A. Manda; "Collecting Orchids," by John E. Lager; and "History of Orchids in England," by George I'Anson.

AMERICAN ORCHID SOCIETY.

American Orchid lovers and enthusiastic growers took advantage of the occasion to organize an American Orchid Society. A meeting was held in the Horticultural Hall, on March 25th, when a temporary organization was effected, and plans were made for a permanent body. Thomas Roland Nahant, Mass., was chosen president; William N. Craig, Boston, secretary; and Alfred J. Loveless, Lenox, Mass., treasurer. A committee of fifteen was named to draw up a constitution and bye-laws to be submitted when the permanent organization is perfected. The first act of the new society was to send a telegram to Albert C. Burrage, at present in Pasadena, Calif., telling of the great success of the exhibition and the formation of an Orchid Society, to which Mr. Burrage replied, expressing his delight, and regretting that he was unable to be present to enjoy it.

GYMNADENIA RUPESTRIS, Miq.—This interesting little Japanese Orchid, which we do not previously remember to have seen alive, is now flowering with Messrs. Flory & Black, at Slough, a few bulbs having been received direct from M. Ijuin, of Tokyo. It is an Orchis-like plant, some six to nine inches high, and bears about three narrow leaves and a spike of eight to twelve lilac flowers, with some darker veining on the lip, the spur being about half an inch long. The species was described by Miquel in 1865 (*Ann. Mus. Bot. Lugd.-Bat.*, ii. p. 206), from materials collected by Keiske, probably in the province of Owari. The Japanese name is given as "Iva-ran," or Rock Orchid, and a figure afterwards appeared in the Japanese work, *Somaku Zusetsii* (xvii. t. 75), under the name of "Ucho-ran." There are dried specimens at Kew from Maximowicz, which are said to have been cultivated at Yedo; from Mrs. Henry, collected at Arima, near Kube; and from Captain Blomfield, who notes the plant as "a pretty terrestrial Orchid, everywhere in July." Specimens of the latter were received at Kew in December, 1873, and examples were sent on to Reichenbach, who reported "not clear without tuber, but placed pro tem. as Orchis latifolia var. Blomfieldii." Whether this name was ever published we fail to discover, but in any case it is incorrect. According to Miquel, Blume referred it to a distinct genus, calling it Phaniasia pulchella, Blume, though Blume does not appear to have published it. Messrs. Flory & Black find that it is easily grown in the Odontoglossum house, under Disa treatment, and by their kindness we brought away a little pot of it for Kew.—R.A.R.

MILTONIA BLEUANA.

AT page 42 we mentioned a plant of the floriferous Miltonia Bleuana in the collection of Mrs. J. J. Neale, Oxton, Kenton, near Exeter (gr. Mr. E. Swinden), bearing twelve flowers from a single bulb, there being spikes of five, four and three flowers. We have now pleasure in illustrating it from a photograph kindly sent by Mrs. Neale, which gives a good idea of the character of this attractive hybrid. M. Bleuana dates back as far as 1889, when it originally flowered with M. Alfred Bleu, at Paris, having been

Fig. 9.—MILTONIA BLEUANA.

raised from M. vexillaria crossed with the pollen of M. Roezlii. Two years later Messrs. Veitch also raised it at Chelsea. Since then it has been recrossed with both the original parents, yielding M. Hyeana with M. vexillaria, and M. St.-Andre with M. Roezlii, while a number of brilliant varieties have also been obtained by using the handsome M. vexillaria memoria G. D. Owen, which is characterised by having a large, dark purple mask at the base of the lip. All these varieties seem to be completely fertile, and several further combinations between them have been made, giving a fine series of decorative garden plants. The work of combining them with the cool Odontoglossums has now begun, which promises to introduce a further development, notably in originating a set of plants better fitted to succeed in a warm climate than Odontoglossum.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on March 9th, and brought together a great display of Orchids, for which awards were made as follows.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), W. Bolton, W. H. White, Arthur Dye, G. Wilson, R. A. Rolfe, J. Charlesworth, F. K. Sander, S. W. Flory, J. E. Shill, W. J. Kaye, E. R. Ashton, R. Brooman White, T. Armstrong, A. McBean, F. J. Hanbury, and C. J. Lucas.

FIRST-CLASS CERTIFICATES.

CYPRIPEDIUM FLORENCE-SPENCER CHARDWAR VAR (memoria Jerninghamiæ × Actæus langleyense).—A beautiful variety, the very broad white dorsal sepal with a yellow base, and the petals and lip light yellow with some brown markings. From Messrs. Armstrong & Brown.

SOPHROCATLÆLIA MEUSE VAR. MAGNIFICA (Lc. callistoglossa × Scl. Marathon).—A large and brilliant variety, having bright rose sepals and petals, and a purple crimson lip with yellow disc. From Messrs. J. & A. McBean.

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM HYMEN (Lambardeanum × Mars).—A promising hybrid, having broad reddish violet sepals and petals with white margins and a zone of white on the petals. From Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

CYMBIDIUM ALEXANDERI ASHSTEAD PARK VAR.—To Mr. Farnes, Orchid grower to Pantia Ralli, Esq., Ashstead Park, for a finely-grown plant bearing two spikes of rose-coloured flowers.

SILVER FLORA MEDALS.

To Messrs. Armstrong & Brown, Tunbridge Wells, for an excellent group of Odontoglossums, Odontiodas and Læliocattleyas, with a few Dendrobiums and Cypripediums. Noteworthy exhibits were Oda. Collinge var. Virginity (Odm. crispum × Oda. Coronation), a charming round, white flower, with a cluster of purple spots on the sepals; O. Dauntless (Oda. Coronation × Odm. Armstrongii), violet-rose with the tips and margins of the segments white; Odm. W. E. Bisset var. majestica (crispum Mossiæ × Mars), dark mahogany red with white margin; and Cypripedium Peggy (Arthurianum × Thompsonianum), well spotted with brown on a yellow ground.

To Messrs. Charlesworth & Co., Haywards Heath, for a fine group,

including many excellent Odontiodas and Odontoglossums, the fine Cœlogyne Lawrenceana, the rare Bulbophyllum Sillemianum with solitary bright yellow flowers, Brassocattleya Andre Maron, Cirrhopetalum picturatum, Odontocidium epiphorum (Odm. epicasta × Onc. corynephorum), rose with dark blotches on the sepals, Miltonia Hyeana, Odontoglossum Ithone (L'Aiglon × Dusky Monarch), Brassocattleya Andre-Maron, and other fine things.

To Messrs. Stuart Low & Co., Jarvisbrook, for another fine group, including several Oncidium splendidum, the rare O. cucullatum, O. concolor, Dendrobium Bancroftianum, a well-bloomed Restrepia elegans, Masdevallia Schrœderiana, Lycaste Skinneri, Læliocattleya luminosa aurea, and numerous representatives of the usual showy genera.

SILVER BANKSIAN MEDAL.

To Messrs. Flory & Black, Slough, for an interesting little group, containing several good Odontoglossums, Sophrocattleya warnhamensis with six flowers, Sc. Venus, a pretty albino Cattleya, Rolfeana Ceres (Bc. Ilene × Sc. Saxa), a pretty blush-pink flower, and others.

To Messrs. Sanders, St. Albans, for an interesting group, including several good Odontiodas and Odontoglossums, Cymbidium Seamew, Garnet, and Gottianum, Vanda cœrulea, Odontoglossum Wiganianum, and several good hybrids of the Cattleya group.

OTHER EXHIBITS.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), showed some very fine cut spikes of Calanthe Baron-Schroder.

Dr. F. Bedford, Dovercourt, Fulford, York, showed Odontioda Madeline Dovercourt var., a handsome form, Brassocattleya Dietrichiana var. Firmin Lambeau, a richly-coloured form, and others.

Pantia Ralli, Esq., Ashstead Park (gr. Mr. Farnes), sent three good forms of Sophrocatlælia His Majesty (Scl. Marathon × C. Trianæ).

On March 23rd there was a very fine display, and a long list of awards, so that our record must be brief.

Orchid Committee present: Sir Jeremiah Coleman, Bart. (in the chair), J. O'Brien (hon. sec.), W. Bolton, R. Brooman White, R. A. Rolfe, F. J. Hanbury, E. R. Ashton, Sir Harry J. Veitch, R. G. Thwaites, G. Wilson, T. Armstrong, H. G. Alexander, J. E. Shill, W. J. Kaye, F. K. Sander, Walter Cobb, C. J. Lucas, Arthur Dye, S. W. Flory, J. Charlesworth, W. H. Hatcher and Stuart H. Low.

FIRST-CLASS CERTIFICATES.

CATTLEYA COWANIÆ ALBA (intertexta alba × Mossiæ Wageneri).—A very beautiful albino, of excellent shape, with lemon yellow disc to the lip. From Messrs. J. & A. McBean.

ODONTOGLOSSUM EVEREST (Princess Mary × Mirabeau).—A large and beautiful hybrid with dark purple blotching on a pure white ground. From Messrs. J. & A. McBean.

AWARDS OF MERIT.

AERIDOVANDA MUNDYI (V. teres × A. Vandarum).—A striking hybrid, most like an enlarged edition of the Aërides parent, with blush pink flowers. From Sir Jeremiah Colman, Bart.

ODONTIODA JOAN WARNHAM COURT VAR. (Oda. Charlesworthii × Odm. armainvillierense).—A fine dark red form with a blush white front to the lip. From C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan).

ODONTIODA JOICEYI (Odm. promerens × Oda. Coronation).—A very handsome thing, the flowers of perfect shape, heavily blotched with red-purple, and the petals having a white band round the central blotch. From J. J Joicey, Esq., The Hill, Witley (gr. Mr. J. Mackay).

PLEIONE PRICEI.—A very pretty Formosan species, whose history is given on page 95. From W. R. Price, Esq., Chepstow (gr. Mr. J. Adamson).

CULTURAL COMMENDATION.

ODONTOGLOSSUM HYEANUM (Harryanum × luteopurpureum).—To Messrs. J. & A. McBean, for a splendidly-grown specimen bearing a spike of twenty flowers.

SILVER FLORA MEDALS.

To H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), for a good representative group, including the brilliant Læliocattleya H. T. Pitt (Lc. bella × C. Enid), Dendrobium Brymerianum, Cattleya Lueddemanniana Stanleyi, Miltonia St. Andre, Odontoglossum mulus, elegantius, and many other interesting things, with Cymbidiums, etc., behind.

To Messrs. Armstrong & Brown, for a fine group, including Brassocattleya Cliftonii magnifica, some good Cymbidiums, Cypripedium Chamberlainianum and Rothschildianum, Sophrocatlælia Vivid (Sc. Atreus gloriosa × Lc. George Woodhams), Brassocatlælia Joan, Dendrobium nobile Sir F. W. Moore, and numerous fine Odontiodas and Odontoglossums.

To Messrs. Charlesworth & Co., whose excellent group included several beautiful Odontoglossums of the xanthotes set, and many blotched hybrids, some brilliant Odontiodas, the fine Cœlogyne Lawrenceana, Maxillaria triangularis, Odontonia Irene, and among numerous Læliocattleyas the very pretty yellow Lc. Iphis, derived from Lc. Lydia × Myra and Cattleya Schrœderæ.

To Messrs. Stuart Low & Co., for a rich and varied group of species and hybrids, among the former being the rare Bulbophyllum Watsonianum, Oncidium concolor, pubes and superbiens, and the latter the white Brassocattleya Veitchii Queen Alexandra, Sophrocattleya Atreus, and others.

To Messrs. J. & A. McBean, for a fine group of Odontoglossums,

Læliocattleya Eunice, a well-bloomed Masdevallia ignea, Cymbidiums, Odontiodas, and numerous others.

SILVER BANKSIAN MEDAL.

To Messrs. Flory & Black, for a choice little group, including Sophrocatlælia Juno (Sc. Saxa × Lc. Dominiana), a brilliant red hybrid, Læliocattleya Elsie (Lc. Ophir × C. Suzanne Hye), white with yellow throat, Brassocatlælia Alcides (Bcl. Veitchii × Lc. Walter Gott, and others.

OTHER EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), showed the rare Vanda suavis pallida, Lycaste Skinneri armeniaca, Cattleya Mildred Gatton Park var., and Læliocattleya Lady Evelyn (Lc. Goldfinch × C. Empress Frederick.

E. R. Ashton, Esq., Tunbridge Wells, showed a pretty group of nine hybrid Dendrobiums, and Sophrocatlælia Margrand with two fine flowers.

G. W. Bird, Esq., West Wickham, showed four pretty Odontiodas, Sunbeam, Gladys, Cooksoniæ and Sensation Manor House var.

R. G. Thwaites, Esq., Streatham, showed the bright-purple Sophrocattleya Lowelliæ (Sc. Wellesleyæ × C. Lawrenceana), Cattleya Dusseldorfii Undine, Sophrocatlælia Cherub (St. Psyche × Lc. rubens), salmon-red, with darker veining and lip, and a few others.

On April 13th there was again a very bright display, and the Orchid Committee was constituted as follows: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), R. A. Rolfe, Arthur Dye, Sir Harry J. Veitch, F. J. Hanbury, J. Wilson Potter, Stuart H. Low, J. Charlesworth, S. W. Flory and J. Cypher.

FIRST-CLASS CERTIFICATES.

BRASSOCATTLEYA GATTON-LILY VAR. TRIUMPH (Bc. langleyensis × C. Trianæ alba).—A charming albino, of excellent shape, and with lemon yellow disc to the lip. From Sir Jeremiah Colman, Bart.

AWARDS OF MERIT.

LÆLIOCATTLEYA EUNICE VAR. SNOWDON (C. chocoensis alba × L. anceps alba).—A very fine pure white form with lemon yellow disc to the lip. From Messrs. J. & A. McBean.

ODONTIODA LEON-PERRIN (Oda. Sanderæ × Odm. eximium).—A large and brilliant hybrid, deep red, with lighter markings on the lip and margin of the petals. From Messrs. Flory & Black.

ODONTOGLOSSUM JOY (Uroskinneri × eximium).—A fine hybrid, most resembling the former parent, and densely spotted with purple on a light ground. From C. J. Lucas, Esq.

CULTURAL COMMENDATION.

DENDROBIUM BRYMERIANUM.—To Mr. H. Haddon, Orchid grower to

Mrs. Bischoffsheim, The Warren House, Stanmore, for a splendidly-grown plant, with 22 spikes and about 60 fine flowers.

SILVER FLORA MEDALS.

To Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), for a group of well-grown Lycaste Skinneri, both white and coloured forms, and L. Mary Gratrix with 13 richly-coloured blooms; a very attractive exhibit.

To H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), for a rich and varied group, including Dendrobium Brymerianum and Dalhousieanum, the rare Cypripedium Druryi, Eulophiella Elisabethæ, Stelis tristyla, Sophronitis grandiflora, Odontioda Vuylstekeæ var. Thompsoniæ, Odontoglossums, etc.

To Messrs. Charlesworth & Co., for a brilliant group of Odontoglossums, Odontiodas and others, noteworthy among them being Sophrocatlælia His Majesty (Scl. Marathon × C. Trianæ), a large and brilliant hybrid, with examples of the parents, good examples of the yellow Læliocattleya Ballii and Lc. Circe, Lycaste gigantea, Polystachya paniculata, Dendrobium imfundibulum, and the usual rich series of hybrids.

To Messrs. Stuart Low & Co., for a showy group, including well-bloomed examples of Oncidium Marshallianum, Renanthera Imschootiana, Lycaste Skinneri alba, Cymbidium tigrinum, Saccolabium ampullaceum, Dendrobium Thwaitesiæ, some good Læliocattleyas, Sophrocattleyas, Odontoglossums and others.

SILVER BANKSIAN MEDAL.

To Messrs. Armstrong & Brown, for a select group, including Miltonia Venus and Bleuana, a charming Odontoglossum promerens xanthotes, O. Jasper, and several other good Odontoglossums and brilliantly-coloured Odontiodas.

To Mr. H. Dixon, Wandsworth, for a good group, including well-bloomed Masdevallia Veitchiana, Cymbidium tigrinum, Oncidium McBeanianum, Læliocattleya Constance-Wigan, and some good Odontiodas and Odontoglossums.

To Messrs. Flory & Black, for a choice group, including the handsome Lœliocattleya H. T. Pitt, three brightly-coloured Sophrocattleyas, Cattleya Empress Frederick, Odontoglossum crispum nigrescens, Odontioda Chantecler, and others.

To Messrs. J. & A. McBean, for a good group, in which a well-grown Oncidioda Cooksoniæ was conspicuous, also Odontoglossum Eugenia (cordatum × crispum), and other good Odontoglossums and Odontiodas.

To Messrs. Sanders, for an interesting group, in which we noted the violet-blue Dendrobium Victoria-Regina, Maxillaria Sanderiana, Cirrhopetalum picturatum, Cattleya Evelyn-Sander (Dusseldorfii Undine × Trianæ alba), Cymbidiums, Odontoglossums and Odontiodas.

OTHER EXHIBITS.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Taylor), sent Odontoglossum Glorita (Jasper × crispum Raymond Crawshay), and a handsome form of O. venustulum.

Sir. Herbert S. Leon, Bart., Bletchley Park (gr. Mr. Field), showed the natural hybrid Cymbidium Cooperi, bearing a fine spike of flowers.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Gover), sent Odontioda Pierette (C. Nœtzliana × O. Clytie), rich crimson-red, O. Violette (Oda. Thwaitesii × Odm. percultum), red-brown with the apex of the segments lilac, Odontoglossum Clotilde (Clytie × eximium), heavily blotched, also forms of Cochlioda Nœtzliana and Brassocattleya Veitchii.

On April 27th there was another fine show, and a large attendance. Orchid Committee present were:—Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), C. J. Lucas, R. Brooman White, W. Bolton, J. Wilson, Arthur Dye, Walter Cobb, J. E. Shill, W. H. Hatcher, J. Charlesworth, A. McBean, E. R. Ashton, F. K. Sander, R. A. Rolfe, Sir Harry J. Veitch, Pantia Ralli, and Stuart H. Low.

AWARDS OF MERIT.

BRASSOCATLÆLIA JOAN VAR. EXCELSIOR (C. Octave Doin × Bl. Gratrixiæ).—A beautiful clear yellow variety. From Messrs. Charlesworth & Co.

CATTLEYA TITYUS FASEY'S VAR. (Enid × Octave-Doin).—A very finely-shaped, rose-coloured form, with purple-crimson front to the lip. From W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. Seymour).

ODONTIODA DECIA (Oda. Charlesworthii × Odm. Mars).—A fine deep claret-coloured flower, with gold shading. From Messrs. Armstrong & Brown.

ODONTOGLOSSUM ADULA (eximium × Doris).—A finely shaped, reddish purple hybrid, with blush-white margins and tips, and a white apex to the lip. From Pantia Ralli, Esq., Ashstead Park (gr. Mr. Farnes).

ODONTOGLOSSUM BONAPARTE (Aglaon × percultum).—A very fine white form, with large purple-crimson blotches. From W. R. Fasey, Fsq.

ODONTOGLOSSUM DIAMOND (King Arthur × eximium).—A very richly-coloured form, blotched with claret on a rosy ground. From Messrs. J. & A. McBean.

ODONTOGLOSSUM FABIA FRANT COURT VAR. (eximium × Aglaon).—A beautiful variety, with clusters of claret blotches on a white ground. From B. H. Smith, Esq., Frant Court.

SILVER FLORA MEDALS.

To H. T. Pitt, Esq., for a select group, including the rose-purple Cynorchis kewensis, Anguloa virginalis, the brilliant Sophrocattleya Anzac, some fine Odontoglossums, Odontiodas, Cypripediums, Miltonias, etc.

To Messrs. Charlesworth & Co., for a brilliant group of Odontoglossums, Odontiodas, Miltonias, members of the Cattleya group, and others, noteworthy among them being the rare Bifrenaria Harrisoniæ pubigera, Odontoglossum luteopurpureum Vuylstekeanum, and the handsome Miltonia Charlesworthii and Lyoth in several examples, and all very finely grown.

To Messrs. J. & A. McBean, for a very fine group of Miltonias, Odontoglossums, Odontiodas and others, noteworthy among them being M. St. Andre with seven spikes, and some particularly well-grown Odontoglossums, white and blotched.

SILVER BANKSIAN MEDALS.

To Messrs. Armstrong & Brown, for a small group of good things, including Odontioda Corojasp (Oda. Coronation × Odm. Jasper), purple-red with white markings, O. Zampa Orchidhurst var., Læliocattleya Mrs. Temple, Bulbophyllum galbinum, and others,

To Mr. H. Dixon, for a small group, including a particularly fine plant of the purple Stauropsis Marriottiana, Dendrobium illustre, Oncidium crispum, Cœlogyne Lawrenceana, and some showy hybrids.

To Messrs. Flory & Black, for a select group of Odontoglossums, Cattleyas, and others, a hybrid from C. Empress Frederick × Lælia purpurata, bearing three very richly-coloured flowers.

To Messrs. Sanders, for a small group, including the fine green and black Cœlogyne pandurata, the rare C. venusta (Rolfe), C. Lawrenceana, C. Moorei, Masdevallia coccinea lilacina, and a few good Odontoglossums and Miltonias.

OTHER EXHIBITS.

G. W. Bird, Esq., sent Odontioda Sensation (Oda. Vuylstekeæ × Odm. crispum), and a very fine plant of O. Vuylstekeæ, with ten side branches and about seventy flowers.

Dr. Miguel Lacroze, sent Odontoglossum Faustina (Dora × eximium), Sophrocattleya Entre-Rios (Scl. Marathon × Lc. St. Gothard), the fine Brassocattleya Cliftonii magnifica, and others.

C. J. Lucas, Esq., sent Odontoglossum Thetis (Solon × The Czar), a richly-coloured hybrid.

Baron Bruno Schröder, sent cut spikes of Odontoglossum crispum Leonard Perfect and O. c. apiatum, two of the old handsomely-blotched forms.

B. H. Smith, Esq., Frant Court, Sussex, sent Odontoglossum crispum Frant Court, a fine white form.

T. D. Wren Esq., The Poplars, Roehampton, sent Odontoglossum St. George (eximium × Alexandra), a richly-coloured hybrid.

Messrs. Stuart Low & Co., sent Læliocattleya Ferschro (Lc. Feronia × C. Schrœderæ), a pretty primrose-yellow hybird.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on March 4th, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, A. Coningsby, J. Cypher, J. Evans, J. Howes, A. Keeling, J. Lupton, D. McLeod, J. McNab, W. Shackleton, E. W. Thompson, J. Thrower, and H. Arthur (Secretary), Mrs. Slingsby was invited to sit with the Committee.

FIRST-CLASS CERTIFICATES.

Cattleya Lady Rowena var. White Swan, an exceptionally large snow white flower, the lip beautifully fringed, with throat and side lobes yellow, and Dendrobium nobile Sir Frederick Moore magnificum, a brightly-coloured form, from S. Gratrix, Esq.

Cypripedium memoria F. M. Ogilvie var. Rex (Pyramus × Curtmanii), a finely proportioned flower, with round, heavily spotted dorsal sepal, very broad, well spotted petals, and the pouch pale chocolate colour (a Gold Medal being also awarded); and Dendrobium Findlayanum album, a beautiful pure white form, from P. Smith, Esq.

Odontioda Red Cross Brackenhurst var., sepals and petals deep red, margined with rose, and lip large, flat, and white in front, from Dr. Craven Moore.

Dendrobium Austinii Bolholt var., a large, bold flower, with blush white sepals and petals, and an intense rich maroon lip, from Capt. W. Horridge.

AWARDS OF MERIT.

Odontoglossum Parsifal, O. Gipsy Queen, Dendrobium nobile Hercules, D. Melpomene splendissimum, D. Lady Jellicoe (Salteri × Rolfeæ), and Lycaste Skinneri rubella superba, from S. Gratrix, Esq.

Odontioda Madeline Christabel, from Mrs. Slingsby.

Cypripedium Seraphina var. Marcell (Lord Ossulston seraphicum × Beeckmanii), from the Rev. J. Crombleholme.

Cattleya Harrisoniana The Grange var., from Messrs. Keeling & Sons.

AWARDS OF APPRECIATION.

Odontioda Sir Douglas Haig (Odm. percultum × Oda. Cooksoniæ), from S. Gratrix, Esq.

Odontoglossum Pluto, from Col. Sir John Rutherford, M.P.

CULTURAL CERTIFICATE.

To Mrs. Slingsby, for Odontioda Madeline Christabel.

Silver Medals were awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes); Capt. W. Horridge, Bury (gr. Mr. Coningsby); and Messrs. Cypher & Sons, Cheltenham, for fine representative groups.

Interesting exhibits were staged by Mrs. Slingsby, Beverley, Yorks; the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall); Dr. Craven

Moore, Victoria Park, Manchester (gr. Mr. T. Arran); Col. Sir J. Rutherford, Bart., M.P., Blackburn (gr. Mr. J. Lupton); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Messrs. Keeling & Sons,, Bradford; and Mr. D. McLeod, Chorlton-cum-Hardy, a number of which appear in the above List of Awards.

At the meeting held on March 18th, the members of Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. Keeling, D. McLeod, J. McNab, Fred. K. Sander, W. Shackleton, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cattleya Cowaniæ alba var. Jeanette, pure white, and the well-fringed lip having an orange throat; C. Trianæ alba var. Mary Regina, with four exceptionally fine pure white flowers; C. Lady Rowena The Bride, pure white, with throat deep orange colour; Læliocattleya Beatrice West Point var. (Lc. callistoglossa × C. Schrœderæ), sepals and petals broad, mauve in shade, with exceptionally dark lip; and Dendrobium Elwesii, of the yellow-flowered type; from S. Gratrix, Esq.

Odontoglossum Doris majesticum (Ossulstonii × crispum), exceptionally fine, and richly blotched with reddish brown; and O. St. George (eximium × Alexandra), flowers large, heavily blotched on a light ground; from P. Smith, Esq.

Cymbidium Gottianum superbum, a fine variety, with spike bearing five large flowers; from the Rev. J. Crombleholme.

AWARDS OF MERIT.

Odontoglossum St. Peter (amabile × Rolfeæ), O. armainvillierense var. Mary, O. crispo-Solon, O. crispum Rosamund; Læliocattleya General Allenbury (Lc. Lucasiana × C. Fabia); and Brassocatlælia Lua (Bc. Mary Beatrice × Lc. G. S. Ball); from S. Gratrix, Esq.

Cymbidium Alexanderi amabile, from the Rev. J. Crombleholme.

Odontoglossum memoria Nurse Cavell, carrying a fine spike of 13 well blotched flowers, from Messrs. Sanders.

FIRST-CLASS AWARDS OE APPRECIATION.

Odontioda Collinge var. rubra (Oda. Coronation × Odm. crispum), and Odontoglossum Laurentia lilacinum (Jasper × Olympia), from P. Smith, Esq.

CULTURAL CERTIFICATES.

To Mr. J. Howes, for Cattleya Trianæ alba var. Mary Regina.

To Mr. J. Sandwell, for a batch of Cypripedium Tom Worsley.

A Silver-gilt Medal was awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for a brilliant group of Orchids.

Silver Medals were awarded to T. Worsley, Esq., Haslingden (gr. Mr. J. Sandwell); and Messrs. Cypher & Sons, Cheltenham, for fine groups.

Interesting exhibits were staged by H. H. Bolton, Esq., Newchurch (gr. Mr. Eastwood); the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Messrs. J. Cowan & Co., Garston; Messrs. Sanders, St. Albans; and Mr. D. McLeod, Chorlton-cum-Hardy.

At the meeting held on April 1st, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Burns, D. A. Cowan, J. C. Cowan, A. Coningsby, J. Evans, A. Hanmer, J. Howes, A. Keeling, D. McLeod, J. Lupton, W. Shackleton, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum eximium Shackletonii (crispum Lucianii × armainvillierense Robsoniæ), a large, well-shaped flower, heavily blotched with brown on sepals, and petals of a purple shade (a Silver Medal being also awarded); O. crispum Troytown, a large, very round white flower; O. Elfrida var. magnificum (Uroskinneri × armainvillierense), sepals with large and petals small spots; Odontioda Alcantara var. rubra (Oda. Cooksoniæ × Odm. eximium), a flower of solid maroon colour, with white-edged sepals; and O. Chantecler var. superba (C. Noetzliana × Oda. Cooksoniæ), a large flower, brilliant light scarlet; from P. Smith, Esq.

Brassocattleya Cliftonii Gratrix's var., a huge flower of good even colour; and Lycaste Skinneri Royal Beauty, segments brilliantly coloured; from S. Gratrix, Esq.

Lycaste Skinneri Cazador, from Mrs. Bruce and Miss Wrigley.

AWARDS OF MERIT.

Odontoglossum crispum Gladiator, O. Tityus (crispo-Harryanum × eximium), Cattleya Mendelii Bridesmaid, and Læliocattleya Joy Sander, from S. Gratrix, Esq.

Lycaste Skinneri delicatissima, from Mrs. Bruce and Miss Wrigley.

AWARDS OF APPRECIATION.

Odontoglossum majesticum Beardwood var. (1st); Odontioda Collinge Beardwood var. (Odm. crispum × Oda. Coronation) (1st), O. aurea (Odm. Lambeauianum × Oda. Coronation) (1st), and O. crispum Beardwood var. (2nd), from Col. Sir J. Rutherford, Bart.

Lycaste Skinneri var. Robin (1st), from Mrs. Bruce and Miss Wrigley.

Odontoglossum crispum Washway (1st), from P. Smith, Esq.

A large Silver-gilt Medal was awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for a very choice group.

A Silver Medal was awarded to Mrs. Bruce and Miss Wrigley, Bury

(gr. Mr. A. Burns), for a fine group, largely consisting of Odontoglossums and Lycastes.

Interesting exhibits were staged by P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Col. Sir J. Rutherford, Bart., M.P., Blackburn (gr. Mr. J. Lupton); Capt. W. Horridge, Bury (gr. Mr. Coningsby); Messrs.A. J. Keeling & Sons, Bradford; and Messrs. J. & A. McBean, Cooksbridge, the latter a flower of their wonderful Odontoglossum Everest, the largest Odonto. ever seen, a magnificent blotched variety.

At the meeting held on April 15th, the members of Committee present were: R. Ashworth, Esq. (in the Chair), Messrs. A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, J. Howes, A. Hanmer, D. McLeod, Dr. F. T. Paul, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cattleya Tityus var. Royal Monarch (Enid × Octave Doin), a huge deep self-coloured flower of perfect shape; Læliocattleya luminosa aurea The Premier, a large flower with deep yellow sepals and petals and maroon lip; and Odontioda orphana, a brilliantly-coloured flower; from S. Gratrix, Esq.

Odontoglossum Pescatorei albens Ogilvie's var., a white flower of good substance, with bright orange coloured disc; from Mrs. Gratrix.

Odontoglossum promerens var. Duchess (eximium × crispum), a well-shaped flower, of solid light chocolate brown, segments with lighter tips, and flat lip; from P. Smith, Esq.

Odontioda Zenobia Houghtonii (Oda. Charlesworthii × Odm. percultum), a large flower of intensely dark purple, with small white lines on edge of lip, from F. Houghton, Esq.

AWARDS OF MERIT.

Cymbidium Alexanderi vars. Ideal and La France, from the Rev. J. Crombleholme.

Odontoglossum excellens var. Golden Dawn and Cattleya Marguerita (intertexta alba × O'Brieniana alba), from S. Gratrix, Esq.

Dendrobium venustum (primulinum × Pierardii), from Capt. W. Horridge.

FIRST-CLASS AWARDS OF APPRECIATION.

Odontoglossum crispum Trojan and O. promerens Prince Henry, from S. Gratrix, Esq.

FIRST-CLASS BOTANICAL CERTIFICATE.

Odontoglossum Lindleyanum aureum, from Capt. W. Horridge.

CULTURAL CERTIFICATES.

Mr. A. Coningsby, for Dendrobium nobile.

Mr. E. W. Thompson, for Odontoglossum eximium var. Purple Gem.

A large Silver Medal was awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for a fine group.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a good group.

Interesting exhibits were staged by Mrs. Gratrix, Whalley Range; P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Capt. W. Horridge, Bury (gr. Mr. A. Coningsby); the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall); F. Houghton, Esq., Appleton, Warrington (gr. Mr. W. Maddock): many of which figure in the above List of Awards.

ORCHID HYBRIDISING

(*Continued from page* 38.)

THE critical period we have seen to be in getting the germinating seedlings over the stage of its own independent existence, and in this connection we may mention some experiments which have been made with Cattleyas at Cornell University, U.S.A., and are given in a paper by Mr. D. Lumsden (*Journ. Int. Gard. Club*, ii. pp. 203-212, with 4 figs.). Seeds were sown under aseptic conditions upon various nutrient media, and also on wood of various kinds kept under normal and abnormal moisture conditions; always without results. But when seeds were sown on a mixture of equal parts of peat and sphagnum moss, covered with canvas and sterilised by steam before sowing, good results were obtained. But there was one condition that is not followed in ordinary practice. It is this. After sterilising, the canvas is raised and small sections of Orchid roots taken from an allied plant are placed on the compost, and the canvas replaced. The pots are then placed in the propagating frame, and after a lapse of one or two days the seeds are sown, and satisfactory and encourag- results have been obtained.

It is remarked: "In no case have the results been encouraging where the fungus (from the root sections) has not been introduced directly to the pots or media," though "it is true that scattering seedlings appear on check pots that have not been sterilised"—which it is suggested may be due to contamination, as the check pots were placed side by side with those containing the fungus—*i.e.*, root sections—in the germinating case.

In order to dispel any theory of the possibility of the fungus having its genesis in the seed, a capsule of a true C. Mossiæ × C. intermedia was taken from the plant previously to its dehiscing: the seeds were extracted and a number of sowings made under purely aseptic conditions, but in not a single instance was any contamination noticeable.

It follows that the essential is to obtain pure cultures of the symbiotic fungi in Orchid roots, and this must be held over.

(*To be continued.*)

OBITUARY.

AUGUSTIN ANDRE PEETERS.—We much regret to hear of the death of this highly-esteemed and successful Orchidist, head of the firm of MM. A. A. Peeters et Cie, Laeken, Brussels, which took place suddenly on March 25th, in his eighty-sixth year. For many years the firm has specialised extensively in Orchids, and has occupied a leading place among continental Orchid growers, and previously M. Peeters was a successful grower of Azaleas, Roses, and other plants. In April, 1898, at Ghent, he was unanimously awarded the first prize for the best one hundred Orchids, to be judged purely from a horticultural standpoint, while five years later he gained the Gold Medal offered by H.M. the King of the Belgians for the best and most varied collection—a magnificent group which is illustrated at p. 145 of our eleventh volume, this group also receiving a Gold Medal from the Royal Horticultural Society. He also obtained the prize for the best collection of hybrids at the same meeting. At this time the establishment was situated at St. Gilles, but later it was removed to an improved site at Laeken, where a block of twenty-seven houses were erected on the latest principles. Accounts of both establishments have appeared in our pages (xi. pp. 129-132; xxi. pp. 267-269). M. Peeters was for many years Vice-Chairman of the Belgian Council of Horticulture, and was also the recipient of many honours. His name is commemorated in the remarkable Eulophiella Peetersiana, the handsome Cattleya Peetersii, a hybrid between C. Hardyana and C. labiata, and other plants.

PHOLIDOTA CONVALLARIÆ, Hook. f.—This interesting Orchid has just flowered in the collection of Lt.-Gen. Sir Arthur G. F. Browne, Woodside, Lower Bourne, Farnham, a specimen having been sent for identification. The species was originally described under the name of Cœlogyne Convallariæ, Rchb. f. (*Flora*, 1872, p. 277), from a plant which flowered at Kew in April, 1867, and which is believed to have been sent home by the Rev. C. Parish, from Moulmein. According to him, it occurs upon mountains there at 4,000-5,000 feet altitude. It has also been collected in the Khasia Hills, at Kohima in the Naga Hills, and at Lushai, Assam, at somewhat similar altitudes. The plant bears oblong pseudobulbs, with a pair of elongated leaves, some 8 or 9 inches long, and compact spikes of white flowers, about as large as lily of the valley. Sir Arthur Browne has a house of quite various Orchids, mostly sent by friends from different parts of the world, and he remarks that they succeed very well. This he attributes largely to a personal acquaintance with the plants and their

requirements, for he has been in jungles and forests in Burma, Lushai, the Chin Hills, and other Indian localities where Orchids abound, and we can well understand the pleasure he finds in the culture of such old personal friends.—R.A.R.

PLEIONE PRICEI, Rolfe.—A finely grown clump of this handsome Formosan Pleione was exhibited at the R.H.S. meeting held on March 23rd last, by W. R. Price, Esq., Chepstow (gr. Mr. J. Adamson), and gained an Award of Merit. The species was discovered by Mr. Price during an expedition to Formosa, in company with H. J. Elwes, Esq., and flowered at Kew in the spring of 1914, a figure subsequently appearing in the *Botanical Magazine* (t. 8729). It is allied to P. formosana, Hayata, another Formosan species, though from the description it differs in the details of the lip and other characters. The flower is large, with rosy mauve sepals and petals, and a well-fringed white lip, which has yellow keels and a few brown markings. The flowers appear with the leaves, in which respect it resembles the Indian P. Hookeriana, another allied species.—R.A.R.

ODONTOGLOSSUM OWENIANUM, Rolfe.—A spike of an interesting Odontoglossum has been sent for determination from the collection of Mrs. Bischoffsheim, Warren House, Stanmore (gr. Mr. Haddon), through Mr. James O'Brien. Its origin is not known, but it agrees with one that was introduced many years ago by Messrs. F. Sander & Co., St. Albans, and was described under the name of Odontoglossum Owenianum (*Gard. Chron.*, 1892, ii. p. 178), being dedicated to G. D. Owen, Esq., Selwood, Rotherham. It was never quite certain whether this plant was a good species or a natural hybrid, and it was remarked that in some respects the lip recalled O. Pescatorei, yet it was very distinct, and it was not clear what particular combination would produce it. "The white lip, yellowish white petals, with or without a chocolate blotch, and the sepals with the disc of the latter colour, give it a very distinctive appearance." Messrs. Sander then informed us that they believed it came home with O. nevadense, but were not positive of the fact. In 1895, what was taken for a form of the same, was thought to have come from near the O. Harryanum district. The one now sent has a deltoid-ovate white lip, with a zone of small purple dots at the base of the limb, the latter a greatly reduced edition of what occurs in O. nevadense, without its pandurate shape. The white lip recalls O. purum, except that it is much broader, and the column wings toothed, not reduced to a pair of cirrhi. O. purum has been considered as a form of O. Wallisii, which, however, has a purple lip and toothed column wings. O. Owenianum recalls O. Wallisii in the shape and colour of the sepals, petals, and column, and as the latter comes from much the same district as O.

nevadense the resemblance to the two is significant, yet the broader white lip is difficult to account for. It is clear that we do not know all about the Odontoglossums of the Sierra Nevada district.—R.A.R.

ORCHID NOTES AND NEWS.

THE meetings of the Royal Horticultural Society for the current period are as follows: An ordinary meeting at the Royal Horticultural Hall, Vincent Square, Westminster, on May 11th, followed by the Great Spring Show in the grounds of the Royal Hospital, Chelsea, on Tuesday, Wednesday, and Thursday, June 1st, 2nd, and 3rd, and the usual fortnightly meetings at Westminster, on June 15th and 29th. At the Chelsea Show the Orchid Committee will meet at 10.30, and at the ordinary meetings at 11.45 a.m. The Summer Show is to be a Great Provincial Show at Cardiff, on July 6th, 7th, and 8th, the arrangements being the same as at Chelsea. The other July meeting is to be held at Westminster, the date being the 13th, after which there will be no meeting until August 24th.

The Manchester Orchid Society's meetings prior to the August vacation are June 10th and 25th, and July 15th and 29th.

CLASSIFICATION OF HYBRIDS.—Your correspondent "Entente Cordiale" is right as to the lamentable confusion arising from the use of several different systems of nomenclature, among which everyone is free to take his choice. It was all to be done away with by an agreed set of rules, the use of which was to be obligatory. The net result of that set of Conferences is that everybody still follows his own particular system, and the effect is chaos. Let the Editor stick to the sensible rule of using the earliest correct name, and the matter is bound to come right in the end. The other systems will break down of their own weight, complicated by a set of unnecessary capitals and hyphens.—F.R.H.S.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

G.B.S.—Photographs and notes received, with thanks. The matter will be reported in our next issue.

Enquirer.—The name should be written Læliocattleya rubens, not Rubens, as it was given as a Latin adjectival name to denote colour.

G.S.—A very interesting series, of which an account is unavoidably postponed. No. 7 is a form of Odontoglossum illustrissimum, and 8 of O. Titania.

E.R.—Masdevallia tridactylites, Rchb. f., one of the best of the gnat-like species.

Erratum.—The hybrid reported at p. 58 as "Cypripedium Sadie" should have been C. Yadie. Please correct.

The Orchid Review

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OUR NOTE BOOK.

ODONTONIAS are now in the ascendant. The handsome O. Pittiæ was followed by two interesting additions at the recent Chelsea Show, O. Gladys, derived from Miltonia Bleuana and Odontoglossum eximium, which gained a First-class Certificate, and O. Dora, from M. Bleuana and Odm. Dora, to which a Preliminary Certificate was given. The latter was a tiny plant, bearing its first particularly charming flower. Since then another little gem has flowered with Messrs. Charlesworth, in this case M. vexillaria and Odm. mirificum being the parents. Its characters are given on page 99 under the name of Odontonia Bijou, and we have secured a photograph for use in a future issue. In this case also the flower is disproportionately large for the size of the plant. They have the property of flowering while very young, and it will be interesting to watch further developments in this promising group.

The Chelsea Show produced a magnificient display of Orchids, including four Gold Medal groups, though certificated Orchids were fewer than usual. The only other that gained a First-class Certificate was Odontioda Gatton Glory, a very large and beautiful golden yellow hybrid with a zone of red blotches at the base of the segments, a new break, which will probably be followed up, for there is room for a group of hybrids of this particular colour. Seedling Odontoglossums included a number of promising things, which will no doubt be heard of later, and albino forms, both among Odontoglossums and Cattleyas, contributed largely to the beauty of the display. A surprise among the exhibits was a magnificient pan of the Madeiran Orchis foliosa, with enormous spikes of rich purple flowers, and broad shining recurved leaves, which gained both an Award of Merit and a Cultural Commendation, the latter in recognition of its excellent culture. It was greatly admired.

Hardy Orchids are looking up. There has been a fine display at Kew and Wisley, and a group from the latter is figured at page 112, under the name of Orchis latifolio-maculata, a name whieh we believe represents its

actual origin, though it is sometimes grown both as O. maculata superba and as O. latifolia. It occurs in many localities where the two species grow together, and we have no doubt that it is a natural hybrid between them, in spite of the fact that it reproduces itself from seed. It is probably an example of a fertile hybrid, and now that Orchids are so easily raised from seed, the matter might easily be tested. It is significant that a hybrid between O. maculata and the Madeiran O. foliosa has occurred spontaneously in at least three different places where the two have been grown together, and it is a good index of what is likely to occur in nature under similar circumstances. There is evidence that O. incarnata and O. latifolia also cross where they grow intermixed. A few experiments on the question would be interesting.

"What is the precise significance of spotted leaves in the O. latifolia group?" we are asked, and the answer is not easy. In O. maculata the leaves are normally spotted, but the spots are feeble when the plants are grown in dense shade, and absent in the albino form. In O. latifolia—at all events as we have long understood it—the leaves are normally unspotted, as they are also in O. incarnata, and there are localities from which forms with spotted leaves seem to be entirely absent. Our experience is that where spotted leaves occur, the common O. maculata is usually present, and as there are other intermediate characters, we regard them as hybrids between the two species. If this view is correct it would exclude them from O. latifolia proper. Linnæus included spotted and unspotted forms under O. latifolia, but the existence of natural hybrids was not understood until long afterwards, and evidence is not wanting that hybridity has obscured the limits of the two species from time immemorial. Some would limit the name O. latifolia to the spotted form, but it is not in accordance with fact, and the only figure cited by Linnæus represents the unspotted form, which is easily recognised by the shape of the lip and the spotted disc. The presence of an intramarginal line in the form with spotted leaves is significant, because it is a normal character in O. maculata.

There are geographical considerations which point in the same direction. The Algerian O. elata, the Indian O. Hatagirea, the Japanese O. aristata, and the Madeiran O. foliosa, all of which are closely allied, and which may be regarded as topographical representatives of O. latifolia, have unspotted leaves. And as regards O. foliosa we have now evidence that it is kept true by isolation, for the natural hybrid with O. maculata has appeared spontaneously in three separate localities where they have been grown together. Hybridisation is a matter of opportunity, and its existence is generally question of recognition of combined or intermediate characters.

The present must be a good year for hardy Orchids, for several interesting notes about them appear in our pages, particularly one relating to the re-discovery of the long-lost Orchis Simia in Kent, after a long interval. When we received a Press-cutting announcing, "Rare Orchid found in Kent," we not unnaturally expected it was an announcement of the event, but this was a mistake. "A Central News correspondent," so it runs, "reports that a fine specimen of the Lizard orchid (orchis hircina) has been found in the Ashford, Kent, district. This orchid was regarded for a long time as extinct in Great Britain, and a great stir was created by the discovery of a specimen in Kent a few years ago. Since then not more than one has been found in a season, and some years have passed without any being found." The present season must be considered fortunate, for we have word of it from two other Kentish localities, one of them with some seventeen to twenty plants together, besides a few scattered specimens. We hope they will be taken care of.

THOSE NAMES.—A Yorkshire evening paper, in an account of the Orchid exhibits at the York Gala, speaking of the group from Gatton Park, remarks, "The particular speciality was an Odonto Glossio Arden Tissimum, named in honour of the late Treasurer of the Royal Horticultural Society." Our correspondent concludes that the gentleman in question must have been a Mr. Tissi, but it looks like a struggle with the new nomenclature. "Adontio Alcantarie" was also discovered in one of the Trade groups.

ODONTONIA BIJOU.—A charming little Odontonia, derived from Miltonia vexillaria and Odontoglossum mirificum, has been sent by Messrs. Charlesworth & Co., Haywards Heath. It is a tiny plant, with two bulbs, and is bearing its first flower, which recalls the Miltonia in shape. The sepals and petals are elliptical, over an inch long, with rosy reticulated lines and dots on a white ground, and the lip is bilobed, somewhat undulate, over one and a-half inches broad, suffused with rose in front, white behind, and more or less dotted with rose in front of the yellow disc. It will be interesting to watch the development of the plant.

EPIPACTIS VIRIDIFLORA, Rchb.—The February issue of the *Journal of Botany* contains a paper by Col. M. J. Godfery, F.L.S., with a plate showing E. viridiflora var leptochila, E. latifolia, and E. violacea, drawn from living specimens by Mrs. Godfery. It is shown that there are marked differences, both in the vegetative and reproductive organs of the plants, and that while E. latifolia and E. violacea are fertilised by wasps, E. viridiflora is largely self-fertilising.

ORCHIDS IN INDIA.

AT the Centenary Flower Show held in the garden of the Agri-Horticultural Society, at Alipur, India, on February 20th and 21st last, the first prize for specimen Orchids was won by Mr. Gosto Behary Seal, of Calcutta, the subjects being Angræcum eburneum and Anœctochilus Roxburghii. He was also awarded a prize for a method of propagating Orchids from flower spikes, and was a successful exhibitor in groups that do not come within the scope of this journal, gaining one of the five Lindley Medals offered by the Royal Horticultural Society of London. We have received photographs of the Orchid exhibits mentioned.

Propagation by flower spikes was already known in the case of Phalænopsis and Phaius grandifolius, but Mr. Seal mentions the case of a flower spike of Oncidium Jamesianum, about 18 inches long, which was accidentally broken off, but was planted, and after flowering the stem remained dormant for a couple of months and then sent out a small plant, which rooted very slowly. With Phalænopsis Mr. Seal has been very successful. A P. Schilleriana, he remarks, "which bore a small plant on a flower spike was tried, and the young plant, with a short piece of stem attached, was planted in fine silver sand, rooted and ultimately grew to flowering size. Flowering stems cut into nine inch lengths have produced plants in P. Schilleriana, amabilis, intermedia, grandiflora, and Sanderiana. The flower-spikes of these I generally cut just before the flowers' completion, and instead of throwing away the spikes, I cut them into 9-inch lengths, and pot them in the same way, and am generally successful in getting a plant on each. Those cuttings which did not give plants threw flower spikes on the season following. Several friends, both European and Indian, have also tried the the same method and have been successful. I have found that Phaius grandifolius is good at producing plants. When the flowering stems are fully mature I cut them, and instead of throwing them away make them into 6-inch cuttings, and plant them in the same way, and with complete success, and for the past six years I have been raising young plants by this novel method."

OPHRYS MUSCIFERA TRIANDROUS.—A very curious abnormal form of Ophrys muscifera has been sent to Kew by Mr. Eric Ogden, King's School, Canterbury, which was found in a wood near there, where the Fly Orchis is common. It was the only one found, and takes its character from the abnormal development of the column, and the corresponding imperfect development of the lip; all the three flowers being similar in this respect.

A closer examination reveals the fact that the petals are absent, being replaced by a pair of additional anthers, adnate to the sides of the column, and each containing a pair of additional pollinia. Only the cells of the central, normal anther, however, bear the usual pair of glands, this, of course, being due to the fact that there is only a single rostellum, the two side lobes of which develop into glands. It is an exceedingly curious development, and is due to the union of the petals with the column and their consequent transformation into a pair of additional anthers. We do not find a similar example in this species, though other abnormal developments have been observed.—R.A.R.

OPHRYS BOTTERONII, Chodat.—Another highly interesting discovery can now be recorded. The natural hybrid between Ophrys apifera and arachnites has been re-discovered between Dover and Folkestone. A beautiful example with three flowers has been sent by Mr. H. Walker, of Folkestone, together with the parents, and it is remarked, "They grow in some cases almost side by side. I found it first last year, and that specimen is in Mr. Hanbury's collection." Major G. W. Harris, of Canterbury, also sends two specimens, with typical examples of both parents, and points out the way the characters are combined. The history of the hybrid has been given (*O.R.*, xxvii. p. 142), and there is no longer any doubt of the correctness of the remark made by the Rev. G. E. Smith, over ninety years ago, that "O. arachnites and apifera, by a commixture of pollen, produce a great variety of character." The hybrid possesses an unmistakable combination of the parental characters, having the strongly recurved lip of apifera, but it is larger in size, and has a terminal apiculus, much smaller, less hairy side lobes, and broad rosy petals, all most like arachnites, which latter has a much broader, flatter lip. These characters were originally observed by Smith, who remarked upon the greater resemblance to O. arachnites. It is probable that the hybrid has been frequently overlooked, because of a general resemblance between the two parent species, but O. apifera is always easily distinguished by the long, narrow petals, the relatively smaller, much recurved lip, which carries the apiculus completely underneath, and the long caudicle of the pollinia. It may be remembered that Messrs. Walker and Harris were the discoverers of O. hybrida in Kent (*O.R.*, xiii. p. 234, fig. 56), and they have both seen the plant again this year, in fact, Mr. Walker remarks that it is "quite established and flowers year by year." Major Harris also announces a colony of "some 17 to 20 plants of Orchis hiricina at one spot. A specimen 'Lizard' was allowed to seed some years back, and besides this colony many isolated specimens are being found." Other residents on the chalk should go and do likewise.—R. A. ROLFE.

ORCHIDS AT GATTON.

SEVERAL interesting British Orchids have been sent by Sir Jeremiah Colman, Bart., who found them on June 6th growing wild in his fine Park at Gatton. There are spikes of both the Bee and Fly Orchis, Ophrys apifera and muscifera, dark and light purple forms of the fragrant Gymnadenia conopsea, the well-known Orchis maculata, and Cephalanthera grandiflora. It is pleasant to know that Sir Jeremiah takes an interest in the native species as well as in their more gorgeous cousins of the tropics, and we well remember the interesting series he included in a fine group staged at Holland House in 1907. This series included also Orchis pyramidalis, Aceras anthropophora, the green man Orchis, and Listera ovata (*O.R.*, xv. p. 242). Other species are known, for example, Brewer, in his *Flora of Surrey*, records Neottia Nidus-avis, Habenaria bifolia, and Herminium monorchis from Gatton Park, and even a single plant of the Monkey Orchis (called O. tephrosantha, another name for O. Simia), is said to have been found by Miss Porter in a copse near the Upper Lodge of Gatton Park at the beginning of June, 1853, and the gardener stated that he had seen it in the same spot on two or three former occasions. Sir Jeremiah has also a record of Epipactis latifolia, which it has been suggested may be E. media, though we should not be surprised to find both in the Park, for Brewer records the former as frequent in woods about Gatton, and the latter as occuring in a dense shaw near Upper Gatton, west of the high road. We should expect to add at least Orchis mascula, O. Morio and Spiranthes autumnalis.

With respect to Orchis militaris, which is thought to have been seen, and about which special enquiry is made, we find no information. Mr. Choules is said to have gathered it between Mickleham and Box Hill, and Trimen vouches for its correctness (*Journ. Bot.*, 1872, p. 211). The question, perhaps, is whether it was O. militaris or O. Simia that was observed, and the point cannot be cleared up until another specimen is found.

The locality is upon the chalk, like Box Hill, once famous for its native Orchids, though they long ago succumbed to the attacks of itinerant flower gatherers. We have an idea that at Gatton it would be possible to preserve any of the remaining species, and perhaps introduce others, if a small area were set apart for the purpose and railed off. It might be advisable to keep down the ranker vegetation, but the smaller grasses form a natural protection. besides forming a pleasing background when the plants are in bloom. With a wet spot at the foot one could also grow some of the showy marsh Orchises. The subject has possibilities.—R.A.R.

ORCHIS ELATA.

PROBABLY the finest Orchis of the O. latifolia set—not even excluding the handsome Madeiran O. foliosa—is the one known as O. latifolia Glasnevin var., of which a well-grown clump, bearing a dozen spikes, is now one of the features of the Kew rockwork. It is also in fine condition at Glasnevin, as we know by a spike received from Sir Frederick W. Moore, who remarks: "There were good plants of it here when I came in June, 1879. I always understood it had been found in Co. Dublin by my father." After the note on its history was given (*O.R.*, xxvi. p. 130), a careful comparison with the Algerian O. Munbyana was made, which convinced us of the identity of the two, and we now suspect that the native Dublin plant, the one called O. latifolia var. præcox, is different from that called Glasnevin var. This view is strengthened by a remark made by Sir Frederick Moore, that the latter "does not seed about." And he adds: "The most prolific seeder we have is O. latifolia, a quite good variety which comes up everywhere in the grass and in pots, of which I send you a good average specimen, a seedling that came up in a pot in the Alpine yard." This free-seeding character was reported of the variety præcox as long ago as 1876, of which full details are given in our note. This brings us to Orchis Munbyana, since identified with the earlier O. elata, which is almost a lost species.

ORCHIS ELATA, Poir., was described as long ago as 1789 (*Voy. en Barbarie*, ii. p. 248), as a handsome Orchis, often over two feet high, with spikes, some eight inches long, of violet-coloured flowers. It was said to be abundant on the plains of Mazoule. In the Algerian herbarium of the late Giles Mumby we find specimens so labelled, which were collected at Maison Carree; also others labelled O. latifolia, collected in the marshes of Harratch. The latter became the type of O. Munbyana, Boiss. et Reut. (*Pugill. Pl. Nov.*, p. 112). Munby had enumerated both (*Fl. Alger.*, p. 99), citing O. foliosa, Lindl. *Bot. Reg.* t. 1701, as synonymous with O. latifolia; an obvious mistake, but we cannot distinguish O. Munbyana from O. elata. The subsequent history of the latter is almost a comedy. Lindley called it Gymnadenia elata? (*Gen. & Sp. Orch.*, p. 277). Reichenbach included it under O. incarnata as var. algerica (*Fl. Germ.*, xiii. p. 53), and Klinge, in a monograph of the section Dactylorchis, includes both it and O. Munbyana under what he calls O. orientalis subsp. africana (*Act. Hort. Petrop.*, xvii. pt. 1, p. 186), both the species and subspecies being new names of his own creating, while both O. latifolia and O. incarnata are treated as different. Cosson calls it O. latifolia var. Munbyana, while Camus has it as O. **incarnata subsp. elata var. Munbyana.**

How O. elata came into cultivation now becomes doubtful, but there is

another Algerian Orchid of the O. latifolia group, namely O. Durandii, Boiss. et Reut., and we have evidence of introductions from that country. Mr. G. S. Lawson, in 1860, spoke of picking up some Orchises in Algeria, and among them O. latifolia (*Trans. Edinb. Bot. Soc.*, vi. p. 274). In July, 1873, Mr. George Maw sent a plant to Kew for name that he had brought from Tangier. Mr. Baker thought it was a large variety of O. latifolia, near the Madeiran O. foliosa. Mr. Maw replied that he had flowered O. foliosa from a neighbouring country and it was certainly distinct, also an O. foliosa of unknown origin from a friend. The latter was probably the true Madeiran plant, and as the Tangier plant is O. Durandii, the probability is that the third was O. elata. Again, in June, 1880, an Orchis was received from Glasnevin with the record, "Algeria, Prof. Percival Wright." Mr. Baker called it O. Munbyana, B. & R., but it has the laxer spike and longer bracts of O. Durandii. Both, however, are Algerian, and there is at least the possibility that both may have been collected. Camus calls the latter O. incarnata var Durandii. The fact is, the O. latifolia group contains a number of distinct topographical forms, whose relations to each are not yet clear, and there is a further complication by hybridisation when these forms happen to group intermixed, sometimes even when planted together in gardens, as in the case of O. folioso-maculata.—R. A. ROLFE.

NATIVE ORCHIDS IN KENT.—Recent discoveries in Kent serve to recall an interesting note by Mr. G. C. Oxenden on its native Orchids (*Trans. Edinb. Bot. Soc.*, vi. p. 432). I have seen, he remarks, some very fine sights this May and June—viz., vast tracts of steep picturesque Grass hills extending for some miles, and throughout their whole length decked and garnished with one or the other of the following plants:—Ophrys aranifera and muscifera, Orchis ustulata, a lovely Orchid, and Habenaria bifolia—all this vast range of hill slopes to the south and south-west. The east side of the same range is all forest ground, and it affords in abundance every variety of Orchis fusca, from a dull white to a very deep mulberry colour, and in size over twenty inches. Near Broome Park, Canterbury, grows the monarch Orchid, Orchis hircina, the Lizard Orchid; and within fifty yards of my house I have one growing, which at this moment (25th June, 1860) is 29½ inches high, and with 50 "Lizards" upon it. July will afford me very fine specimens of Ophrys arachnites, and if you have never seen the wonderful varieties of this Orchid, they will astonish you. Some of the varieties of the Bee Orchis are also exceedingly curious. In August we get Herminium monorchis in abundance, very minute, very fragrant, and under the microscope the most beautiful object imaginable. In July and August we have Epipactis latifolia and E. purpurata in tolerable abundance.

LYCASTE BALLIÆ.

THE hybrid between Lycaste Skinneri and L. macrophylla is extremely floriferous and beautiful, as may be seen from the annexed figure, which represents a plant exhibited by Messrs. Charlesworth & Co., at a meeting of the R.H.S. held in January, 1896. The thirteen flowers shown are all borne on a single bulb. The hybrid originally bloomed in the collection of G. S. Ball, Esq., in January, 1896, when we received a flower,

Fig. 10. LYCASTE BALLIÆ.

but owing to a doubt about the second parent, it was provisionally referred to L. schœnbrunnensis, a hybrid from L. Skinneri and L. Schilleriana (*O.R.*, ii. p. 40). The point was afterwards cleared up. The plant received a First-class Certificate from the Manchester Orchid Society in November, 1898. The sepals are irregularly mottled with carmine on a terra cotta ground, and the petals rosy crimson, shading off to white at the tips. Other hybrids from the same parentage are varieties of L. Balliæ.

CALENDAR OF OPERATIONS FOR JULY-AUGUST.

By J. T. BARKER, Orchid grower to His Grace the Duke of Marlborough, Blenheim Palace, Woodstock, Oxon.

DURING the two warmest summer months, the general growing conditions of the various departments should remain as previously advised, every effort being made to maintain free and vigorous growth, and success will be sure to follow. The daily routine of watering, damping, shading, cleaning, and ventilating will occupy the grower's time, but the monotony will be broken by watching the daily progress of the plants, and in many cases, the advancement is evident. This is perhaps more apparent this season than during the last few years, owing to the increased labour available, and the general return to more normal conditions is welcome, and should benefit our collections materially. The climatic conditions that prevail at this period are generally favourable to the development of the plants. Warm days and dewy nights are congenial to the occcupants of the Warm, Cattleya and Mexican houses. The cool dewy nights are also appreciated by the inhabitants of the Cool houses, though during the day the usual steps should be taken to prevent any excess of temperature.

VENTILATION.—To give plants every chance of deriving benefit from the cool and moist night air, the bottom ventilators should be left open in the warm houses, whilst in the cooler departments the top ventilators may also be used, whenever the outside conditions are favourable for such a procedure. Orchids succeed much better under the modern rational treatment than ever they did in the days when they were coddled, as fresh air is to them as essential as it is to a consumptive patient.

ATMOSPHERIC MOISTURE.—This free ventilation, and the increased amount of sun heat, necessitates a greater amount of atmospheric moisture, care being taken that this is not carried too far during a spell of cold weather. The health of the plants depends entirely on the conditions provided for them, hence the necessity of careful observations of the outside conditions at all times.

SHADING.—In order to strengthen and solidify the new growth, in bulbs and leaves, the shading may be removed earlier in the afternoon as the season declines, the plants at this season being much better able to withstand strong light, and more air, than they were at the beginning of their growing season. As the different species complete their season's growth, it is generally advisable, if possible, to remove such plants to a house where they may gradually receive more light, air, and less moisture. Those plants that are in full growth should receive water at the roots whenever they become dry, as perfect development of growth is only possible under

suitable conditions, hence the necessity of watchfulness, especially in the small details of cultivation.

WATERING.—Well rooted plants at this season will take up considerable supplies of water, whilst newly potted plants, and feeble rooting varieties must be watered with caution.

POTTING.—In most establishments this season there has been a great amount of repotting to be done, owing to the arrears which accumulated during the war, the scarcity of material and other causes. No plant can make satisfactory root growth in a sour, decomposed material, hence the necessity of repotting when the material becomes in that condition, if the best results are to be obtained. A sweet healthy compost is of the first importance, followed by a judicious use of the water pot, and the best result can be looked for. In repotting any plants it is advisable to do them just as they are about to push forth new roots, which will prevent them from losing their leaves, and suffering as they invariably do whenever potted in a haphazard manner.

CYPRIPEDIUMS of all sections that are well rooted, must from now onwards have copious supplies of water, as if allowed to become dry they are readily attacked by thrips, which soon disfigure their young tender foliage, and flower spikes when they begin to push up. During fine, bright weather, these plants may be syringed, or sprayed, which will help to keep attacks of insect pests down and the plants clean. Soft, tepid water, should only be used for this purpose, as hard or dirty water leaves a deposit on the leaves. The C. niveum section was dealt with last month.

SOBRALIAS are easily grown plants, but resent disturbance at the roots, therefore should have special care when potting becomes necessary. When they cease flowering, any that are in need of new material should have attention. A mixture of good fibrous loam and peat, of a similar nature to that used for Cymbidiums, makes a suitable compost. They should be potted moderately firmly, and water must be sparingly applied to them until the new roots get into action. Sobralias thrive best in the Cattleya house, and when their growth is completed enjoy a fairly dry resting season, but having no pseudobulbs, this should not be carried to excess. An occasional spraying will be the means of keeping the plants clean, and preventing insect pests.

CATTLEYAS AND ALLIES.—Many species of Cattleya, Lælia and their numerous hybrids have recently passed their flowering stage, and those plants that need repotting should be attended to when the plants are about to make new roots. The idea of potting all the members of this large family at one season is now obsolete, and rather than let the plant be in a starved condition, it is much better to repot it, irrespective of season. Much valuable time may be gained in this manner, and a host of plants done, instead

of pressing them all into the busy season. When repotting any of these plants, the beginner should remember that over-potting is an evil, and should be guarded against; the smaller the pot the better the safeguard against injury from excessive watering at the roots. The careful observer will notice great diversity in the nature of the roots of this complicated family, some being quite robust rooters, others quite feeble, making roots of a thin wiry nature. The thick rooters are generally very strong growers and are capable of filling a larger receptacle with roots than those which make roots of a finer nature. The latter should be placed in the smallest receptacle possible. Cattleya Warneri, after repotting should be kept on the dry side, and only receive sufficient water to keep the pseudobulbs plump. As the plants are at rest, if this treatment is adopted, they will make many roots, and break away strongly into growth at their proper season. The same remarks apply to C. Warscewiczii (gigas), which after flowering should have any necessary repotting done, and be kept fairly on the dry side until the plants start into growth in the spring. When re-established they should be gradually exposed to more sun and air, to consolidate and ripen their growths. This is the secret of flowering this, and other so-called shy-flowering Cattleyas. Lælia purpurata also delights in much the same treatment, but it is obvious that in a family so diversified there are some exceptions to any rule that can be laid down.

ODONTOGLOSSUM CRISPUM AND ALLIES.—This family of Orchids is at the present time one of the most popular, as well as one of the most useful. Towards the end of August a start should be made to repot any Odontoglossums of this section which require it. The proper time to repot is when the new growths have attained the length of several inches, according to the strength of the plants, and are about to push forth new roots, commencing with the most forward, and following on with others as they reach the desired stage. As many as possible should be done at this season, as they quickly re-establish themselves. Large pots should not be used, and the old rootless and leafless pseudobulbs should be removed. These may be used for propagation, and if the eyes are sound will soon start into growth if placed upon any damp material, such as a layer of sphagnum moss, and sprayed from time to time.

MEXICAN ODONTOGLOSSOSSUMS.—Plants of the Mexican O. citrosmum in most collections have passed their flowering season, and as the young growths are making considerable headway, now is the time for any necessary repotting. As the plants do not make many roots, receptacles of the smallest size should be used. Shallow pans, that may be suspended from the roof, are preferable to baskets. Afford good drainage, and use a shallow compost of Osmunda fibre, A1 fibre, and peat, chopped up rather small and well mixed together. Cut off all useless back bulbs, and pot

each plant quite firmly. Suspend the plants from the roof of the Mexican house, and for a few weeks after root disturbance keep the surface of the compost just moist; when well established copious supplies of water are necessary. O. citrosmum requires a rather warm sunny position by day, but cooler and moister conditions at night, with plenty of ventilation at all times. O. grande, Williamsianum, Insleayi, and Schlieperianum are growing freely, and any that are in need of new material should have attention. A very porous compost of Osmunda fibre should be used, for, although these plants require copious watering when in full growth, water should pass quickly through the compost, as the fleshy roots are liable to decay if the compost becomes dense and saturated. O. pulchellum may also be repotted, and will succeed well in a light position in the Cool house during the summer months, but it prefers a few degrees more heat during the winter. As soon as growth is completed, afford the plant a rest by keeping the compost well on the dry side; as without a rest it will not bloom satisfactorily.

VANDAS.—As such plants as V. teres and V. Miss Joaquim pass out of bloom, any necessary repotting should be attended to. Those that are leggy should have their stems cut off, so that the bottom leaves rest on the top of the compost. Five or six stems should be placed in a well drained pot, each stem being tied firmly to a neat stake, the pots then being surfaced with growing moss. For a few weeks after disturbance, the plants should be carefully shaded, and by that time many young roots will have started, if a moist atmosphere has been maintained. When the new roots are nicely away, and new growth pushing, the plants may be gradually exposed to direct sunlight, which they delight in.

ONCIDIUMS.—There are many species of Oncidium which at this season may be repotted, should they be in need of new material. A similar compost to that used for Odontoglossums will suit them, to which, however, slightly more leaves may be added.

GENERAL REMARKS.—Another Chelsea show has passed, and Orchids undoubtedly formed the most conspicuous feature, and no further proof should be wanted, that they have not lost their hold upon the general lovers of the beautiful. When we have out-lived the various restrictions, under which we yet suffer, we shall soon again reach that standard of excellence for which these shows have long been noted.

ORCHIDS FROM WALLASEY, CHESHIRE.—A charming series of Cool house Orchids is sent by G. Short, Esq., Wallasey, Cheshire, the majority being Odontoglossums. There are over a dozen forms of O. crispum, white, blush, rose, and spotted, and of excellent shape and texture; among them the varieties White Swan, Bonnyanum, and Adelina Patti, a well-blotched

form. Of the hybrids we may mention a brilliant O. armainvillierense, and the white var. xanthotes, with clear yellow disc to the lip, O. Soramis (crispum × Phoebe), showing well the cirrhosum ancestry, O. illustrissimum, a finely blotched form, an excellent O. Titania, a spray of O. Clytie, and some unnamed ones, among which we note a pretty light purple with darker mottling, aud a dark brown hybrid of the mirificum type. A fine example of O. Pescatorei, with flowers of Odontioda rosefieldiensis, O. Charlesworthii, and Zygopetalum crinitum complete the series. They are sent as examples of plants in bloom in an amateur's modest little house, and Mr. Short is to be congratulated on the result.

NEW ORCHIDS.

IN a forty-seventh Decade of New Orchids in the *Kew Bulletin* the majority are South African, described from dried specimens, but there are two species of Phalænopsis from garden plants, both belonging to the section Stauroglottis.

PHALÆNOPSIS LATISEPOLA, ROLFE.—An ally of P. denticulata, Rchb. f., which flowered in the collection of M. Roger Liouville, of Maure, Ille-et-Villaine, France, in April, 1914, when it was sent to Kew through Sir F. W. Moore, Glasnevin. The flowers are said to be violet-scented, and have greenish-yellow sepals and petals with rows of red-brown dots, and the white lip has a purple apex.—*Kew Bull.*, 1920, p. 130.

PHALÆNOPSIS MICHOLITZII, Rolfe.—An ally of P. tetraspis, Rchb. f., which was introduced by Messrs Sander through their collector, W. Micholitz, in 1889, though not previously described. The flowers are cream white, with numerous long hairs on the front lobe of the lip.—*Kew Bull.*, 1920, p. 130.

ODONTOGLOSSUM EXIMIUM XANTHOTES: A CURIOUS GROWTH.—When recording a curious growth on a plant received from Messrs. Charlesworth (*O.R.*, xxvi. p. 231), it was remarked; "The future behaviour of the plant will be watched with interest." The succeeding growth showed precisely the same conspicuous, semi-transparant margin to the leaves, and now it has produced three flowers showing another kind of abnormality. The inner halves of the lateral sepals are coloured like the crest of the lip, and there is also a yellow, slightly thickened line at the base of each petal. The dorsal sepal is wholly white, and the usual yellow spots are confined to the lip, and the inner halves of the lateral sepals. It would now be interesting to know if the original plant, had similar flowers.—R.A.R.

ORCHID HYBRIDISING

(*Continued from page 93.*)

THE method of preparing pure cultures of the symbiotic fungi in Orchid roots is next described by Mr. Lumsden. Both aëriel and ordinary roots are utilised. They are first washed thoroughly to remove any particles of dirt or other foreign matter, then cut into one-and-a-half inch lengths, the external surfaces being sterilised by immersion for one-half to three minutes in a seven per cent. solution of calcium hypochlorite.

Inoculations are made in a small room constructed specially for the purpose. A fine water spray is used to cleanse the air of any floating material, and the table, hands and arms are carefully sterilised. Instruments, such as scalpel, forceps and needles, are flamed after each operation. Every possible precaution is taken to isolate the true mycorhizal fungus. Small pieces of root, about one-eighth of an inch long, are cut off, and transferred to the Petri dishes containing the nutrient agar, and the cultures are grown in the dark, under average humidity, at a constant temperature of about 25° C. Out of a series of about one hundred cultures, only two organisms have occurred with any noticeable regularity, and there has been no contamination.

Mr. Lumsden firmly believes that Orchidaceous plants have become, as it were, specialised on various root fungi, and it is remarked that experiments with a large number of crosses of the Tribe Vandeæ, Cypripedieæ, and Epidendreæ are definitely showing that a separate organism is required for each tribe, and perhaps in some cases genus, and in very specialised cases, species.

Work is still in progress along these lines, and more definite conclusions will be presented in an article at a later date, illustrated with photo-micrographs showing the relation between the Orchid seed and the fungus, which it is suggested is perhaps one of mutual parasitism rather than of mutual symbiosis.

(*To be continued.*)

CATTLEYA MURIEL.—The three-flowered inflorescence of a very charming albino Cattleya has been sent from the collection of Mrs. J. J. Neale, of Oxton, Kenton, near Exeter, by Mr. E. Swinden, who remarks that its parentage is C. Dusseldorfii Undine × C. Mendelii alba. It flowered out of a batch of crosses obtained at the Ogilvie sale, and Mr. Swinden wishes it to be named after Miss Muriel Neale, who is a great lover of Orchids. The flowers are pure white, of excellent shape, and with a light yellow disc to the lip.

ORCHIS LATIFOLIO-MACULATA.

THE present figure represents a splendid clump of the natural hybrid Orchis latifolio-maculata, now flowering on the rock-work of the R.H.S. Gardens at Wisley, and for the loan of the block we have to thank the Editor of the *Garden*. It has been grown as Orchis latifolia, and as such was figured in the issue of that Journal for May 29th last, but a visit to Wisley on June 5th, and the opportunity of comparing a specimen with the Kew plant, leaves no doubt as to its identity with the Kilmarnock Orchis, sometimes known as O. maculata superba, of which a very complete history has already been given (*O.R.*, xxvi. pp. 177-179). One may form an idea of what the clump is like when we say that only half of it is here shown, that there are forty spikes, and that the flowers are bright rose-purple in colour, with a tracery of darker purple lines on the lip. The leaves are finely spotted with black, a character which has not come out well in the figure. As to the decorative value of the plant, we may repeat the remarks of the late Miss F. Hope: "The average length of spike in a bed of seventy-two was seven inches, some with over nine inches of inflorescence. A bed of this is faultless; no staking is required. From the first peeping through the ground the extra dark markings of the Kilmarnock Orchis make the bed an attractive one for weeks before the flowers make their appearance."

Returning to the Wisley plant, we noted a still larger clump a few feet away, but these were more scattered, and interspersed with about one-third Orchis maculata, while there were three little clusters with wholly green leaves, though entirely typical as regards the flowers, and apparently seedling reversions. This clump appeared to be made up largely of seedlings, and in any case we have Mr. Wright's authority for saying that it is seeding all over the place. We saw many of them, some at considerable distances away, and bearing apparently their first spike. Later on they increase, becoming little clumps, as in the case of the green-leaved reversions just mentioned. We believe that the stock was originally introduced; at all events we could not find an example of the green-leaved O. latifolia with spotted lip which is so common in Hampshire and at West Drayton. It may be added that on the Kew rock-work O. latifolio-maculata seeds about in just the same way, and many of them are now in bloom, differing considerably in depth of colour.

This is the British hybrid formerly called Orchis Braunii, a Continental plant recorded as from the same parentage, though its identity requires confirmation (see *O.R.* xxvii. p. 169), partly because the Continental O.

Fig. 11. ORCHIS LATIFOLIO-MACULATA.

latifolia is said to have spotted leaves, and partly because the original O. Braunii is said to have green leaves. Whatever its original name may be, we have evidence that the hybrid is common, widely-diffused, fertile, and subject to reversion. Its beauty cannot be called in question, and someone might now give us the necessary confirmation of its origin, for we have plenty of evidence that the seeds germinate freely under suitable conditions. The case of O. folioso-maculata is entirely parallel, it having appeared spontaneously in at least three different places where O. foliosa has been grown in company with O. maculata.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the Society was held at the Royal Horticultural Hall, Westminster, on May 11th, when there was only a moderate display of Orchids, and these rather scattered about the building.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, W. Bolton, Arthur Dye, S. W. Flory, J. Charlesworth, W. J. Kaye, J. E. Shill, F. K. Sander, T. Armstrong, E. R. Ashton, Pantia Ralli, F. J. Hanbury, R. A. Rolfe, G. Wilson, R. G. Thwaites, C. J. Lucas, and R. Brooman White.

AWARDS OF MERIT.

CATTLEYA SNOWFLAKE VAR. NOEL (Dusseldorfii Undine × labiata alba).—A beautiful albino, bearing two flowers with a yellow lemon disc to the lip. From Sir Herbert S. Leon.

ODONTIODA GLOSS BROADLANDS VAR. (Oda. Charlesworthii × Odm. triumphans).—A handsome form, having broad uniformly orange-red sepals and petals, and some yellow on the lip. From E. R. Ashton, Esq.

ODONTOGLOSSUM FABIA RALLI'S VAR. (eximium × Aglaon).—A very fine claret-purple flower, margined with white, and with a handsomely blotched lip. From Pantia Ralli, Esq.

SILVER FLORA MEDALS.

To E. R. Ashton, Esq., Broadlands, Camden Oak, Tunbridge Wells, for a fine group, including Odontioda Camden (Oda. Coronation × Odm. illustrissimum), bearing a dozen very round and richly-coloured flowers, margined with white, Odontoglossum Cloth of Gold (amabile × Wilckeanum), a fine O. Ashtonii, O. Ossulstonii, O. harvengtense, O. mirum, a well-coloured O. crispum roseum, and several good blotched forms.

To H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), for a good group, including a handsome form of Miltonia Charlesworthii, forms of M. vexillaria, some brilliant Odontiodas and Odontoglossums, among the

latter being O. crispum Ivanhoe and O. Lambeauianum var. Stapelia, the latter densely and uniformly spotted with rose, and other good things. The group also contained a few interesting botanical species.

To Messrs. Armstrong & Brown, Tunbridge Wells, for a fine group, in which Odontoglossums, Miltonias and Læliocattleyas were conspicuous, noteworthy exhibits being a very fine Odontoglossum Wilckeanum with twelve flowers, a well-bloomed Sophronitis grandiflora, and several other good things.

To Messrs. Charlesworth & Co., Haywards Heath, for a choice group, containing some excellent examples of Miltonia Charlesworthii and Lyoth, the green and black Cœlogyne pandurata, Cattleya Skinneri Temple's var., C. Irene (Mossiæ Wageneri × Suzanne Hye), a coloured C. Dusseldorfii, Odontioda Charlesworthii, Eurydice and xanthotes, O. Flora (Lambeauianum × Joan), red-brown with mottled lip, Læliocattleya Elinor (L. Coronet × Lc. Schilleriana), with two orange-coloured flowers, Odontonia Irene, the pretty Odontoglossum Philipsianum aureum, and a number of finely blotched hybrids.

SILVER BANKSIAN MEDALS.

To Pantia Ralli, Esq., Ashstead Park (gr. Mr. Farnes), for a choice group of Odontoglossums and Odontiodas, the latter including brilliant forms of Chantecler and Enchantress, and the former O. Phillip (harvengtense × Phillipsianum), handsomely blotched with claret-red on a yellow ground, O. Emma (eximium × ashteadense), a richly-coloured hybrid, and three charming O. crispum xanthotes.

To Messrs. Sanders, St. Albans, for a very interesting group, including examples of Cochlioda Nœtzliana, Odontioda rosefieldiensis and Cooksoniæ, a very fine Miltonia Charlesworthii, Cœlogyne Lawrenceana, Bulbophyllum penicillium, Masdevallia Houtteana, Dendrobium Pierardii, Odontoglossum cordatum, etc.

OTHER EXHIBITS.

The Hon. Robert James, Richmond, Yorks. (gr. Mr. Benstead), sent Odondoglossum St. Nicholas (eximium × promerens), a richly-coloured form.

Sir Herbert S. Leon, Bletchley Park (gr. Mr. W. W. Field), sent a richly-coloured Læliocattleya Sir David Beatty var. Leoniæ (Dominiana × Wellsiana), Miltonia vexillaria Thompsonii with two spikes, and the pretty blush-pink Brassocattleya langleyensis.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent cut spikes of four and five flowers of Læliocattleya Aphrodite and Lc. Fascinator, the latter in light and dark-coloured forms.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. Gover), sent a richly-coloured Læliocattleya Domos.

THE CHELSEA SHOW.

The Great Spring Show was held at the Royal Hospital, Chelsea, on June 1st, 2nd, and 3rd, and brought together a magnificent display of Orchids, which were staged at the sides of the large central tent. The plants were arranged in undulating banks and dells, producing a very charming effect, which might have been improved if greater space had been allotted to individual groups. The trade made a special effort, the result being eight brilliant groups, of excellent quality, three of which gained Gold Medals, while a similar award went to a splendid group exhibited by Sir Jeremiah Colman, Bart. Certificated Orchids were fewer than usual. The attendance was good, and an early visit was made by Her Majesty the Queen, accompanied by Princess Mary and other members of the Royal Family.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), W. Bolton, A. McBean, Arthur Dye, J. Cypher, H. G. Alexander, F. K. Sander, S. W. Flory, G. Wilson, W. H. Hatcher, Stuart H. Low, R. A. Rolfe, J. W. Potter, Walter Cobb, H. J. Chapman, E. R. Ashton, R. G. Thwaites, and Clive Cookson.

FIRST-CLASS CERTIFICATES.

ODONTIODA GATTON-GLORY (Odm. King George V. × Oda. Colmaniæ).—A large and very beautiful hybrid, the flowers of Odontoglossum shape, and canary yellow in colour, with a large red blotch on the sepals and lip, and two rather smaller ones side by side on the petals, these forming a zone of colour which sets the flowers off to great advantage. From Sir Jeremiah Colman, Bart.

ODONTONIA GLADYS (Miltonia Bleuana × Odm. eximium exquisitum).—A remarkable hybrid, most like the Miltonia in shape and the Odontoglossum in colour. The sepals and petals are claret-purple, margined and slightly splashed with white, while the exceptionally broad lip has a zone of white beyond the crest, and a much broader white margin. From Messrs. Charlesworth & Co.

AWARDS OF MERIT.

MILTONIA MEMORIA CROWN PRINCESS MARGARET.—A very beautiful hybrid of the M. Sanderæ type, having blush-white flowers with a claret-purple mask at the base of the lip. From Messrs. Sanders.

ODONTOGLOSSUM CRISPO-SOLON VAR. KENNETH.—A beautiful deep claret-coloured variety, with some white markings between the nearly confluent blotches. From Messrs. Charlesworth & Co.

ODONTOGLOSSUM ST. GEORGE VAR. ALBION (eximium × Alexandrina).—A very richly-coloured variety, segments claret-coloured, tipped with lilac, and the lip handsomely blotched. From Messrs. Charlesworth & Co.

ORCHIS FOLIOSA.—A well-known Madeiran species, shown in ex-

ceptionally fine condition, a pan of ten plants with dense spikes of rich purple flowers. From Mrs. Evelyn Holden, Goldwell, Newbury. A Cultural Commendation was also awarded to this excellent exhibit.

PRELIMINARY COMMENDATION.

ODONTONIA DORA (Miltonia Bleuana × Odontoglossum Dora).—A tiny plant, bearing its first flower, which was most like the Miltonia in shape, and the colour white with a large rose-purple blotch at the base of each segment. A very charming acquisition. From Messrs. Charlesworth & Co.

WILLIAMS' GOLD MEDAL.

The premier award went to Messrs. Charlesworth & Co., Haywards Heath, for a magnificent group of well-grown plants, including a rich series of albino and blotched Odontoglossums, Odontiodas, Læliocattleyas, and others. The centre was largely made up with Miltonia Charlesworthii, and elsewhere we noted, good examples of Cattleya Skinneri alba and the brilliant Temple's var., C. Mossiæ Wageneri and C. Warneri alba, the green and black Cœlogyne Mayeriana; two well-bloomed C. Dayana Odontoglossum Phillippsianum aureum, Anguloa Ruckeri, Lælia purpurata Queen Alexandra with five white flowers, the brilliant scarlet Odontioda Isabella, from O. Chantecler and a blotched Odm. crispum, O. Charlesworthii, several examples of the charming Habenaria rhodochila, Odontonia Vulcan (O. Louise × M. Charlesworthii), O. Latona (M. Bleuana × Odm. mirificum), Epidendrum vitellinum, Brassocatlælia Zora (Bcl. Adonis × C. Mossiæ), Miltonia Venus, &c., &c., the group being excellent in every respect.

GOLD MEDALS.

To Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), for a rich group, staged in the form of an undulating bank, and including many fine Odontoglossums, Odontiodas, Cattleyas, Læliocattleyas, Brassocattleyas, &c., with tall Dendrobiums and others behind. In front we noted a charming little series of botanical rarities, including the pink Australian Sarcochilus Ceciliæ, Masdevallia trichæte and calura, Cœlogyne Schilleriana, Bulbophyllum nudiscapum and barbigerum, Cirrhopetalum miniatum, the graceful Pleurothallis stenopetala, Lycaste cruenta, L. Imschootiana, and the dark green L. Locusta, Dendrobium Parishii, Physosiphon Loddigesii, &c. We also note good examples of Brassocattleya Shilliana, Epidendrum Boundii, Miltonia vexillaria memoria G. D. Owen, Cattleya Mossiæ, C. Skinneri Temple's var, and C. S. alba, Miltonioda Actæus, blush pink with a cherry red blotch at the base of the sepals and lip, Odontioda Chantecler, Cochlioda Nœtzliana, and others too numerous to mention.

To Messrs. Armstrong & Brown, Tunbridge Wells, for an excellent group, both as regards quality and arrangement, and including a profusion

of fine Odontoglossums, Odontiodas, Miltonias, Læliocattleyas, and others, among specially noteworthy plants being Odontoglossnm Ancre (armainvillierense × Mars) and O. Aspasia Orchidhurst var., two richly-blotched forms, Odontioda Armstrongii (Oda. Vuylstekeæ × Odm. Armstrongiæ), rich scarlet, Brassocattleya Veitchii splendens, Cypripedium Goultenianum Orchidhurst var., a very fine form, Læliocattleya Ianthe (Lc. Dominiana × C. Warneri), a richly-coloured hybrid, Lc. Teucra nobilior, two brilliant varieties of Cattleya Niobe, several fine Miltonias, and numerous others which we have not space to enumerate.

To Messrs. J. & A. McBean, Cooksbridge, for a very fine and effectively-arranged group, in which the Odontoglossums were particularly good, one splendid O. crispum bearing a spike of seventeen flowers, while handsomely blotched and yellow forms were conspicuous. In the centre was a bank of white Odontoglossums arranged with scarlet Odontiodas and well-grown Miltonias, and at the back and sides some good Cattleyas, Læliocattleyas, Oncidium McBeanianum, and others, while among specially noteworthy plants were, Odontoglossum Fascinator aureum, O. luteopurpureum Vuylstekeanum, O. St. George var. Evansianum, with two immense flowers, O. illustrissimum Shrubbery var., Odontioda Orestes (Oda. Coronation × Odm. percultum), the scarlet O. keighleyensis, Oncidioda Cooksoniæ, Cypripedium Lawrenceanum hackbridgense, and some very beautiful Miltonias, an altogether worthy exhibit.

SILVER-GILT FLORA MEDALS.

To Messrs. Cypher and Sons, Cheltenham, for a rich and varied group of well-grown plants, containing many specially fine Læliocattleya Aphrodite and Fascinator, Lælia purpurata, Odontoglossums, Miltonias and other showy Orchids, with good examples of such old favourites as Vanda teres gigantea, Anguloa Clowesii and Ruckeri, Odontoglossum Uroskinneri album, O. cordatum aurem, a lot of Cypripedium Maudiæ, Cattleya Skinneri alba and C. Dusseldorfii Undine, Masdevallia Veitchiana, coecinea, Stella, Reichenbachiana, muscosa, and calura, Trichopilia Backhouseana, Bulbophyllum barbigerum, and others, with some tall Epidendrums and Cypripediums behind, and the whole very tastefully arranged.

To Messrs. Flory & Black, Slough, for another beautiful group, in which the Cattleyas and Læliocattleyas were particularly effective, a series of thirty albino Cattleyas including beautiful examples of Cowaniæ alba, The Bride, Brenda and Magali Sander. We noted also several brilliant C. Empress Frederick, several Læliocattleya Aphrodite, Fascinator, and Dominiana, Lc. Chimæra (Lc. Hector × C. Dowiana Rosita), Lc. Pavlova (C. Empress Frederick × Lc. Pizarro), Lc. Nazimova (L. pumila × C. Tityus), Cattleya Snowdrop (Harrisoniana Stanley's var. ×

intertexta), fine forms of Odontioda Hiawatha and Brackenhurst, a number of good Odontoglossums, both of the eximium and Black Prince type, O. plumptonense var. Heliotrope, O. Eros var. Sentinel, Disa Blackii and Luna, Epiphronitis Veitchii, and other good things.

SILVER-GILT GRENFELL MEDALS.

To Messrs. Stuart Low & Co., Jarvisbrook, for a very rich group, in which forms of Cattleya Mendelii and Mossiæ were numerous and varied in colour, with fine examples of C. Warscewiczii, Warneri, Empress Frederick, and Dusseldorfii Undine, many brilliant Læliocattleyas and Brassocattleyas, Cœlogyne pandurata, Nanodes Medusæ, Renanthera Imschootiana, Oncidium papilio, Kramerianum, Marshallianum, and varicosum Rogersii, Sophrocatlælia Beta (Sl. Psyche × C. Maggie Raphael alba), Dendrobium thyrsiflorum, Diacrium bicornutum, Phalænopsis amabilis, Brassocatlælia Decia, the rare Masdevallia trichæte, Brassavola Digbyana, Bulbophyllum barbigerum, and a beautiful series of Odontoglossums and Odontiodas; a very brilliant series.

To Messrs. Mansell & Hatcher, Rawdon, E. Yorks, for another excellent group of Cattleyas, Læliocattleyas, Miltonias, Odontoglossums, Odontiodas, and others, noteworthy exhibits being Lc. San Juan, a very fine white with purple front to the lip, some good Lc. Aphrodite, Cattleya Myra Peeters, Anguloa Cliftonii, Miltonia Charlesworthii with three fine spikes, many good M. Bleuana, a beautiful M. Hyeana with an eight-flowered spike, two plants of the rare M. Phalænopsis, Cypripedium niveum, Cochlioda Nœtzliana, good examples of Odontioda Charlesworthii, the rare Angræcum Leonis, and a lot of fine Odontoglossums, white and blotched.

SILVER FLORA MEDAL.

To Mr. H. Dixon, Spencer Park, Wandsworth Common, for a good group of well-grown Læliocattleya Aphrodite, Odontoglossum crispum, O. c. Black Prince, O. Facinator, some good Miltonia vexillaria and M. Charlesworthii, Cymbidium Lowianum and var. concolor, a brilliant Sophronitis grandiflora with eight flowers, Cypripedium niveum, C. bellatulum, C. callosum Sanderæ, and various other showy things.

OTHER EXHIBITS.

Pantia Ralli, Esq., Ashtead Park (gr. Mr. Farnes), sent Odontoglossum Jasper Ralli's var., prettily blotched with mauve on a white ground, and a brilliantly-coloured O. eximium.

G. Geale, Esq., Elmsleigh Road, Wandsworth, sent a good light form of Brassocatlælia Triune.

Hardy Orchids were not numerous, but there were a few interesting things in a group of herbaceous and alpine plants staged by Mr. G. Reuthe, Keston, and we noticed the North American Cypripedium parviflorum in the group of Mr. Maurice Pritchard, of Christchurch.

The meeting of June 15th, was held at the Royal Horticultural Hall, Vincent Square, Westminster, when the exhibits were very few in number.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), W. Bolton, Arthur Dye, Sir Harry J. Veitch, R. A. Rolfe, C. H. Curtis, F. K. Sander, J. E. Shill, R. G. Thwaites, E. R. Ashton, Pantia Ralli, and F. J. Hanbury.

FIRST-CLASS CERTIFICATES.

LÆLIOCATTLEYA MARS VAR MRS. WILLOUGHBY PEMBERTON (Baroness Emma × eximia).—A very large and perfectly-shaped flower, the sepals and broadly ovate petals rosy-mauve, and the lip rich purple, with some yellow on the disc and some close lines in the paler throat. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

SILVER FLORA MEDAL.

To Messrs. Charlesworth & Co., Haywards Heath, for a beautiful group of choice things, the centre consisting of ten beautiful albino Cattleyas, including C. Stuartii virginalis (Mossiæ Wageneri × Mendelii Bluntii), C. Blackii, and C. Myra Peeters, while behind was a beautiful example of Læliocattleya Martinetii, Lc. Fascinator, Lælia tenebrosa Walton Grange var., with clear yellow sepals and petals, a handsome Disa Blackii, a tall scarlet Odontioda, etc., other interesting things being the rare Masdevallia velifera, M. calura, M. Reichenbachiana, three pans of the charming Habenaria rhodochila, one with five spikes, the interesting Myrmecolælia tibibrosa with three flowers, reddish-buff with purple lip, Brassocatlælia Joan, Odontoglossum Penelope (Rolfeæ × Olympia) with four handsomely spotted flowers, O. Marcus (Jasper × Harryanum), a fine thing with closely mottled flowers, some charming whites and other good things.

OTHER EXHIBITS.

W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. Seymour), sent Odontoglossum Fabia majesticum (eximium × Aglaon), the sepals and petals well blotched with claret, and the fine lip broadly bordered with white.

Messrs. Sanders, St. Albans, sent Odontoglossum crispum belgicum, bearing five well-shaped white flowers, with a zone of red-brown blotches on the segments.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on May 6th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Burns, E. Cooper, D. A. Cowan, J. C. Cowan, A. Hanmer, Dr. R. N. Hartley, J. Howes, D. McLeod, J. McNab, E. W. Thompson and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum virginale Princess Mary; O. hellemense (harvengtense × crispum), a noble flower, sepals and petals rich yellow, heavily blotched with reddish brown; Odontioda Chantecler var. flammea, flowers of fine shape and rich scarlet in colour; and Cattleya Mendelii alba The Queen; from S. Gratrix, Esq.

Odontoglossum Phillipsianum var. aureum (luteopurpureum Vuylstekeanum × eximium xanthotes), probably the finest yellow yet flowered, heavily spotted with deep yellow on a light ground (a Silver Medal being also awarded); and O. Doreen var. majesticum (eximium × Empress of India), from P. Smith, Esq.

Odontoglossum crispum Leoniæ (Britannia × Leonard Perfect), a grand form, flowers heavily blotched with reddish brown, from Mrs. Gratrix.

Odontioda Gladys var. Enchantress (Oda. Bradshawiæ × Odm. Pescatorei), a fine plant, bearing a spike of 15 flowers, sepals and petals blotched with red on a white ground and margined with magenta, lip almost white in front, from Messrs. Sanders.

AWARDS OF MERIT.

Brassocattleya Triune var. Victory, from Mrs. Gratrix.

Odontoglossum Amazon, Brassocattleya Joan var. Golden Wren, Læliocattleya Moonbeam var. Radiance, and Cattleya Mossiæ grandis, from S. Gratrix, Esq.

Odontoglossum eximium xanthotes var. Snowball, from P. Smith, Esq.

AWARDS OF APPRECIATION.

Cypripedium Gowerianum Gratrixianum (Lawrenceanum Hyeanum × Curtisii Sanderæ) (1st class), from S. Gratrix, Esq.

Odontioda Madeline var. Newline (Odm. crispum Grarieanum × Oda. Charlesworthii) (1st class), and Odontoglossum Pioneer (Vulturia × crispum) (2nd class), from P. Smith, Esq.

CULTURAL CERTIFICATES.

To Mr. J. Howes, for Læliocattleya Colombia var. Wellsiana.

To Mr. E. W. Thompson, for Miltonia Charlesworthii var. Peerless.

Silver-gilt Medals were awarded to S. Gratrix, Esq., West Point (gr. Mr. J. Howes), and to P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson), for particularly choice groups.

Interesting exhibits were staged by Mrs. Gratrix, West Point (gr. Mr. J. Howes); Messrs. Sanders, St. Albans; Messrs. Armstrong & Brown, Tunbridge Wells, the latter a wonderful blotched Odontoglossum.

The Annual General Meeting of the Society was held at 2.30 p.m., the Rev. J. Cromebleholme presiding. The minutes of the previous Annual Meeting, May, 8th, 1919, were read and confirmed, and the Report and

Balance Sheet as submitted were adopted. The whole of the Officials were reappointed for the ensuing Session, and along with the donors of prizes were cordially thanked.

The Prizes were presented to the successful Competitors, as follows:

Charlesworth's, for New Awards, to S. Gratrix, Esq. Gardener's prize to Mr. J. Howes.

McBean's, for Odontoglossums and Odontiodas, to S. Gratrix, Esq. Gardener's prize to Mr. J. Howes.

Hassall's, for Cattleyas and Læliocattleyas. S. Gratrix, Esq. Gardener's prize to Mr. J. Howes.

Cypher's, for arrangement of groups, to S. Gratrix, Esq. Gardener's prize to Mr. J. Howes.

Evans', for Dendrobiums, to S. Gratrix, Esq. Gardener's prize to Mr. J. Howes.

A. Hanmer's, for most points, to S. Gratrix, Esq. Gardener's prize to Mr. J. Howes.

J. J. Bolton's for Cypripediums, to S. Gratrix, Esq. Gardener's prize to Mr. J. Howes.

W. Pickup's, for varieties not otherwise provided for, 2nd prize to S. Gratrix, Esq. Gardener's 2nd prize to Mr. J. Howes.

A. R. Handley's, for Cultural Certificates to gardener, 1st prize to Mr. A. Burns, 2nd to Mr. J. Howes, 3rd to Mr. A. Coningsby.

P. Smith's for groups, 2nd prize to Mr. J. Howes.

Botanic Society of Manchester's Gold Medal to Mrs. Bruce and Miss Wrigley.

W. Pickup's, for varieties not otherwise provided for, 1st prize to Mrs. Bruce and Miss Wrigley. Gardener's prize to Mr. A Burns.

P. Smith's for groups, 1st prize to Mr. A. Burns, 3rd prize to Mr. A. Coningsby.

Sander's, for Cut Flowers, to Rev. J. Crombleholme. Gardener's prize to Mr. E. Marshall.

The Secretary begs to report that all the above have been offered for competition during the ensuing season with the following alteration: Mr. J. Evans will give the Prizes for Odontoglossums and Odontiodas in lieu of Messrs. J. & A. McBean, and in addition, S. Gratrix, Esq., and Mrs. Gratrix (jointly) will offer a Cup, and prize to gardener for Cymbidiums. Full particulars of competitions appear in Member's Booklet.

ORCHIS SIMIA IN KENT.—After a long interval, during which it was feared to be extinct in the country, this very rare and interesting Orchis has again been found in East Kent. A single plant was found, growing with Orchis Morio and Aceras anthropohora, by Mrs. S. Hall, who sent flowers to

Kew for identification. The plant itself was left. There are several old country records, and among them Dartford, in West Kent, from which source a specimen is preserved in the Borrer Herbarium at Kew. It is a chalk-loving plant, and is common in some localities on the Continent, though apparently always rare in Britain. A painting has been made, and the flowers are being preserved. It may be added that the plant figured as O. militaris in Smith's *English Botany*, t. 1873, from a specimen gathered near Dartford, by Mr. Peete, F.L.S., is really O. Simia, which can always be distinguished by its narrow, curved, dark purple lobes of the lip. In O. militaris the lip is flatter, and the front pair of lobes distinctly dilated upwards. These two species and the allied O. purpurea were confused in some of the early records. Somewhat later two specimens of the rare Lizard Orchis, Orchis hircina, were found in the same locality, making the twelfth species of Orchid found in the district.—R.A.R.

OPHRYS PHILIPPEI, Gren.—A very interesting natural hybrid Ophrys has been sent to Kew for determination by Dr. Joseph Poucel, Marceille, France. It was found by him as a single example, in a wood of pines and oaks, in the Department of Var, and is suggested as a probable natural hybrid, with O. Scolopax as one of the parents. The other we believe to have been O. aranifera, for there are marked resemblances to both, and thus we refer it to the plant described in 1859 as O. Philippei, Gren. (*Rech. Orch. Toulon*, p. 11), which was found in the environs of Toulon by Philippe. Of this Camus remarks that it resembles O. Scolopax rather than O. aranifera, while one that he himself describes as O. Nouletii (*Journ. de Bot.*, vi. p. 158) is said to be rather nearer O. aranifera in colour. The latter was based on a specimen gathered at Le Vernet, rives de la Ariège, by Noulet, and from the identical parentage we must regard it as a form of the earlier hybrid. A black and white figure of O. Nouletii is given by Camus (*Mon. Orch. Eur.*, p. 303, t. 25, fig. 866), and from it the plant now sent differs in having rounder side lobes to the lip. It is about a foot high, and bears six flowers. The sepals are white with a green mid-nerve, as described by Grenier, and the petals light green, like those of O. aranifera in shape, and hairy. The lip is longer than the sepals, with a pair of rounded, hairy side lobes about the middle, and the ground colour is green, closely marbled, or almost reticulated with dusky brown on the disc, and with a darker brown margin. The greater part of the front is dark brown, with a little green marbling in the centre, and a light green apex. We cannot see any other combination of species that would produce this plant, and only two other hybrids of O. Scolopax are known, those with O. apifera and with O. fuciflora, and both are markedly different. The discovery is interesting, and we had not previously seen the plant.—R.A.R.

ORCHIDS AT THE YORK GALA.

ORCHIDS were finely represented at the Yorkshire Floral Fête and Gala, held at Bootham Park, York, on July 16th, 17th and 18th, this being the fifty-eigth annual Exhibition.

COMPETITIVE CLASSES.

Messrs. James Cypher & Sons, Cheltenham, gained the prize for a group 12 by 5 feet, with a very effective arrangement of Miltonia vexillaria and Bleuana, Odontoglossums, Oncidiums, Læliocattleyas, Masdevallias, Thunias, Vanda teres and others, in well grown-examples. They also gained the prizes for twelve, six and one, the latter a beautiful white Cattleya Queen Mary. Other noteworthy specimens were Læliocattleya Aphrodite, Brassocattleya Veitchii, Lælia cinnabrosa, Thunia Majoriana and a profusely flowered Miltonia vexillaria.

In the amateur's classes Mr. A. J. Francois, Axholme House, Doncaster (gr. Mr. D. Pitts), gained the prizes for six, three, and for a single specimen, his best exhibits being specimens of Cœlogyne pandurata, Oncidium hastilabium, Odontioda chelseiensis and Læliocattleya Violetta. Other prizes were won by Mr. James Sunley, South Milford.

Orchids were also represented in groups of plants staged for effect, Messrs. Cypher including some graceful Oncidiums in their first prize group of 15 by 6 feet, while cut flowers exhibited by Messrs. Fenton & Sons, Hanover Square, London, included bridal bouquets of white Cattleyas, and of white Odontoglossums, and bouquets of Odontiodas, and of mauve and purple Cattleyas, and a hand basket of mauve Cattleyas and blotched Odontoglossums, an extremely beautiful series.

NON-COMPETITIVE GROUPS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), staged a magnificient group of Orchids, with a background of moss and small ferns, to which a Large Gold Medal was awarded. Læliocattleyas, Odontoglossums and other showy things were used in profusion, while noteworthy exhibits included Odontoglossum Gatton Emperor, O. memoria J. Gurney Fowler, Læliocattleya Phœbe, Cypripedium callosum Sanderæ, the curious Nanodes Medusæ, and the dainty little Bulbophyllum barbigerum.

Messrs. Mansell & Hatcher, Rawdon, E. Yorks, also received a Large Gold Medal for a beautiful group, artistically staged on a background of green, noteworthy plants including Cattleya Mossiæ Wageneri, and C. Hesta magnifica, Læliocattleya Canhamii and Cowanii, Odontoglossum Doreen magnificum, Anguloa Rolfei, and Odontioda Alcantara.

Messrs. Armstrong & Brown, Tunbridge Wells, were awarded a Gold

Medal for a beautiful group of Odontoglossums and other Orchids, O. eximillus, Læliocattleya Aphrodite and Martinetii, and Cattleya Mendelii Duke of York being specially noteworthy exhibits.

Messrs. Stuart Low & Co., Jarvisbrook, staged a fine group of Orchids, conspicuous among them being the handsome Miltonia Charlesworthii, some brilliant Renanthera Imschootiana, Odontioda Lutetia, and Læliocattleya Aphrodite. A Gold Medal was awarded to this and a group of Carnations, which were staged side by side.

ROYAL HORTICURAL SOCIETY'S AWARDS.

A deputation from the Royal Horticultural Society was present, and the awards made included the following to Orchids.

Gold Medals to Sir Jeremiah Colman, Bart., Messrs. Mansell & Hatcher, and Messrs. Armstrong & Brown.

Silver-gilt Flora Medal to Messrs. James Cypher & Sons.

First-class Certificate to Odontoglossum Doreen magnificum, from Messrs. Mansell & Hatcher.

Awards of Merit to Cattleya Hesta magnifica, from Messrs. Mansell & Hatcher, and Odontoglossum Emperor Constantine, from Sir Jeremiah Colman, Bart.

HARDY ORCHIDS.

HARDY Orchids have made a good display for the last few weeks. On the rock-work at Wisley a prominent feature has been the profusion of hybrid Orchis latifolio-maculata, a group of which is figured at page 113. It is thoroughly at home on the moist banks and dells, and scattered seedlings are flowering all over the place. O. maculata exists in hundreds in the most diverse situations, its spikes of lilac flowers being very effective among the grass and other plants with which it grows. We saw one example of O. maculata alba. Near the top of the rock-work was a bed of the handsome Orchis folioso-maculata, its recurved spotted leaves and bright purple flowers being very effective, while at either corner was a plant of the green-leaved O. foliosa. We also saw a single plant of the North American Cypripedium parviflorum, and a good clump of the native Epipactis palustris, the latter not yet open. In such a locality several other native species should flourish, and it would be an ideal situation in which to raise seedlings if an attempt were made to prove the parentage of a few of the British natural hybrids. There are also spots in which the native Orchis incarnata ought to succeed.

On the rock-work at Kew there has been a profusion of Orchis foliosa and O. latifolio-maculata, there being many seedlings of the latter, showing

a considerable variation in colour. Both parents are represented. Of the green-leaved O. latifolia there are plants in and near the swamp. Of O. maculata there are several clumps, including one in a New Zealand Bulbinella, and a nearly white variety iu a Sempervivum, both originally seedlings. Of the white O. O'Kellyi, which we think represents a white O. maculata, there is a charming group of over a dozen plants. The handsome O. elata, long known as O. latifolia Glasnevin var. (see p. 103), is represented by a very fine clump, bearing thirteen spikes of rich purple flowers, and near by are plants of O. folioso-maculata, from two different sources, both originating as accidental seedlings. O. incarnata and var. pulchella have both bloomed, but the spikes were cut early in the hope of strengthening the plants. O. laxiflora is now over, but O. pyramidalis and Gymnadenia conopsea are good, and there are five spikes of the interesting Orchicœloglossum mixtum—originally described as Habenari-orchis viridi-maculata as long ago a 1891—from the original source, and unmistakably intermediate in character. Other interesting plants are the South European Serapias lingua, Epipactis palustris and gigantea, Cypripedium Reginæ, thriving well on a dry bank, and C. macranthum and its variety album, the two latter now over. Altogether a very interesting series.

The writer has an interesting little group of over two dozen plants, including O. incarnata and latifolia, O. maculata from two different localities, O. latifolio-maculata, and O. foliosa, and with a single exception well established in the corner of a rose bed, where they are kept well watered. The exception is a group of four O. incarnata, which are weaker than last year, and are not flowering, yet O. latifolia, with which it grows in a wet marsh at West Drayton, is as strong as ever. O. incarnata has died out before, and everything points to the necessity of "wet feet," as well as a suitable soil. R.A.R.

ORCHIDS IN TRINIDAD.—Mr. C. H. Lankester, of Cartago, Costa Rica, who is spending a vacation in the old country, and has brought a number of dried and living Orchids, had the pleasure of calling at Trinidad on the way home, and saw several interesting things. On visiting Mr. Eugene André, he found plants of the local Oncidium Lanceanum in bloom, and a trimmed hedge of Murraya exotica (a member of the Orange family) freely planted with Vanda teres, formed a very interesting piece of gardening. On looking up Mr. Freeman, at the Botanical Gardens, he saw the local Schomburgkia in bloom, a fascinating Orchid, which looks exactly like the Costa Rican species. Trouble has been experienced with insects, and one plant showed evidence of the presence of a small hemipteron, a soft reddish yellow insect, astonishingly prolific and very wily, which in Costa Rica does a great deal of harm at elevations of 2,000 to 4,000 feet.

ORCHID NOTES AND NEWS.

THE meetings of the Royal Horticultural Society for the current period are as follows: The Summer Show is to be a Great Provincial Meeting at Cardiff on July 6th, 7th, and 8th, an invitation having been accepted from the Lord Mayor of Cardiff, supported by the Cardiff and County Horticultural Society. The arrangements will be the same as at the recent Chelsea Show, and the Coronation Cup is offered for the best exhibit at the meeting. Ordinary fortnightly meetings will be held at the Royal Horticultural Hall, Westminster, on July 13th, 27th, and August 24th, when the Orchid Committee will meet at the usual hour, 11.45 a.m. There will be no meeting on August 10th, the Hall being closed for redecoration. The dates of the September meetings are the 7th and 21st.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on July 15th and 29th, after which the Society will adjourn for the summer holidays until September 2nd. The Orchid Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

ORCHIDS AT CHELSEA.—The following newspaper cutting is not without humour :—

CAGED FLOWERS.

Wire-guarded Orchids at the Chelsea Show.

We have reached the stage when beautiful newcomers in the World of Flowers are considered precious enough to be shown in wire cages, padlocked and watched by keepers like the animals in the Zoo.

Orchids worth many times their weight in gold . . . . were allowed to enjoy their freedom in the terraced loveliness at the Royal Horticultural Show at Chelsea yesterday, but the real thrills were the imprisoned blooms. It seems an unpoetic thing to rob a flower of its freedom and invite the public to look at it in a cage resembling a rabbit-hutch.

The caged flowers included new orchids, new sweet peas, and new carnations, and the slender form of Beautiful Ann Page, a new iris, towered above them all. Another prisoner was a new variety of orchid, the Miltonia Memoria, Crown Princess Margaret. It is a masked orchid and the flower is white.

There is a peculiar little flower that gives signals of distress at the least puff of wind. It is not ornate, and, when still, it might be mistaken for a bunch of insects. But breathe on it heavily and it will wave its little hairy

arms up and down as if angry. It is not a new orchid, though it is seldom seen in this country. It is a native of Brazil, and goes by the name of bulbophyllum barbigerum.

CLASSIFICATION OF HYBRIDS.—There is no method of classification which will correct the mistakes of a wrong method of nomenclature. Exhibitors should use names that are in accordance with the rules. It is useless to blame the Orchid Committee for passing incorrect names. It is not a Nomenclature Committee, and makes its awards according to its own standard of merit. The result appears according to the colour of the recorder. The other day a very fine plant of Odontoglossum Hyeanum was exhibited, and received a Cultural Commendation. One report recorded the fact, another says it was Odontoglossum Souvenir de Victor Hye de Crom. Perhaps the exhibitor has a preference for the shorter name, perhaps he remembers that the R.H.S. Nomenclature Committee, and the Vienna and Brussels Congresses all report in its favour, and that the R.H.S. Council has appealed for the adoption of the Rules. Perhaps he remembers that when Brassocattleya Digbyamo-Mossiæ appeared G.C. *hoped* "some means might be taken to render the specific name less cumbrous," and he is able to see the analogy. Perhaps he knows that the only figure of the plant does not qualify for inclusion in the new "Pritzel" because of neglect of the Rules. Perhaps, even, he has some seedling varieties coming on and knows that shortage of materials will prevent a further extension in the size of his labels. The problem is quite interesting.—O.C.

There is also the paper shortage and the increase in the cost of printing to be considered.—ED.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

F.W.M.—Many thanks. The matter will probably clear itself up. Orchis latifolia Bartoni is probably a form of O. latifolio-maculata (see *O.R.*, xxvi. p. 179). Several other interesting specimens have been received, and will be reported on.

G.B.S.—Photographs received, with thanks. A note appears on another page.

C.W.P.—The Brassavola has duly arrived, with several other interesting things, and a report will follow as soon as possible.

T.P., A.G.L.B., and others. Many thanks. We will reply shortly.

An addressed label has duly reached us, but the package has become detached and gone astray. Will the sender please take steps to recover it?

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ORCHIDS IN COSTA RICA.

By C. H. LANKESTER.

POLITICAL Costa Rica forms very nearly a complete faunal and floral region of its own, containing many endemic species. This, however, extends well down into the Republic of Panama, the orographic chain of Chiriqui having probably the same features, or but slightly modified, on the central volcanic range of mid Costa Rica.

In the north-east the coastal forest belt, though divided from Nicaragua by the river San Juan, may be but slightly modified by it, yet that seems to be the northern limit of Cattleya Dowiana, which occurs sparingly in the vicinity of the Sarapiqui River, but has not, I believe, been found in Nicaragua, only a few miles away. Guanacaste, the north-western frontier province, is the extreme southern prolongation of the Sonoran type of vegetation, and this comes beyond its cantonal borders slightly south of Puntarenas to the Rio Grande. Lower than this the forest belt changes more to the type of the majestic Atlantic forest, though it is not so thickly studded with trees, and has much lighter undergrowth, a fine feature being extensive areas of palms (Acanthorhiza?) on the flats, and on some of the foot hill slopes patches of Chamædorea nana.

Orchids are less abruptly defined in their zonal distribution than are many other plants, the seeds being so admirably adapted for dispersal by high winds that frequently they are found in quite improbable situations. On the other hand, taking this fact into consideration, it is strange why some of them should be so very restricted in their range. In the moist regions of the middle zone they seem to be in a very great number of cases indifferently epiphytic or terrestrial; frequently they become the latter through accident, and at times form wonderful masses of growth in such situations as favour them. True terrestrials, on the other hand, very rarely occur as epiphytes; Microstylis, possibly, may be an exception. At elevations of 5,000 to 9,000 ft. on the northern and north-eastern slopes of the central volcanic range, a thick layer of humus accumulates on all lateral or horizontal branches of trees, and in this many Orchids, normally terrestrial, thrive luxuriantly among masses of Gesnerads, Bromeliacæ, Thibaudiæ, Clusiæ, epiphytic Melastomads, Ferns, Cyclantheras,

Anthuriums, and many other genera. A wealth of species is sometimes found on precipitous slopes, exposed to the prevailing trade winds. The majority of plants in such situations are very stunted in growth, and are those that, normally epiphytic, have just succeeded in attaining a precarious root-hold. These are principally Maxillariæ and Pleurothallidæ, an occasional Oncidium, and frequently Sobralias. Many Bromeliaceæ abound in such stations.

The low hill region to the south of Cartago has a large and varied Orchidaceous flora. At elevations of 5,000 to 6,000 feet a great feature is the ubiquitous and very bright Ericad, Satyria Warscewiczii. This also is indifferently epiphytic or terrestrial, and its masses of white and scarlet flowers are followed by waxy mauve fruits, edible, as Asa Gray said of other similar fruits, for boys and pigs. In this district large specimen plants of Maxillarias and many of the Pleurothallis group may sometimes be found as terrestrials. This also is the home of the attractive little Monotropa coccinea. On the tree trunks here, some seven or eight feet from the ground and upwards, are found little groups of Masdevallia picturata, several species of Lepanthes and Stelis, an occasional pendant Epidendrum falcatum, which is more abundant to the north of Cartago or in the valley of the Reventazon, where on the branches of Pithecolobium cognatum it may be seen in its finest development. There are plants of it at Las Concavas nine feet in length. A strong grower here is Epidendrum Brassavolæ, which emits a very powerful and repugnant aroma after seven in the evening, as does an Oncidium from the north of Cartago. A plant of this latter is growing well at Kew, which on flowering should be visited at that hour. A fat black wingless cockroach abounds in Costa Rica which, if carefully crushed by a good stout boot, competes strongly with these two plants; it is hard to say which of them has the most evil smell. This same insect lies in wait for the choicest buds in one's collection, and often destroys in one night the fruit of a year's expectation, though he, in his turn, may be frustrated by a slug or a ravenous locust.

The tree-lined river banks are great distributors of plants from the upper to the lower levels. Thus, on the Reventazon I have found Odontoglossum pulchellum abundantly, and O. Schlieperianum occasionally, at 3,200 ft. This is progressive against the normal wind direction, their area of greatest abundance being north and north-west of Cartago at from 5,000 to 6,600 feet Two forms of O. pulchellum are common at this altitude, but only that with the slender bulbs survives below 3,500 feet. Cattleya Dowiana has a deep zonal range. A great surprise was its occurrence at Las Concavas in May of this year, at over 4,200 feet elevation. In April, 1915, I found it on the Rio Estella, within ten miles of the sea. Its true zone is from 600 to 2,500 feet, and in that it is mainly restricted to the trunks of Cordia Gerascanthus

(nom. vern. Laurel, a very useful timber, immune from the attacks of termites). Above that it favours Ulmus mexicana, and I was told by a peon that he found a large plant on a "Pizco," Calyptranthes sp.

Some of the Pleurothallideæ, especially Lepanthes and many Masdevallias, prefer somewhat sheltered situations to those fully exposed to rain and wind, and are found on the undersides of branches or in the folds of buttresses of trees where direct rain can rarely or never reach them. The latter genus, as a rule, grows in the lightest root-covering moss; the other may be buried in mosses or Hepatics half-way up its beautifully bracteate stem. Of this genus I made an extensive collection, embracing some very attractive forms, and tried to bring them alive to Kew. Unfortunately our voyage was prolonged beyond reasonable expectation, and only the hardier or pseudobulbous genera survived the extreme conditions experienced. Among regretted losses was a strong little plant of Telipogon (Biolleyi ?), one of the gems of the upper middle zone. The whole centre of the large flower is an intense velvety maroon, bordered by palest green. These are difficult subjects to cultivate; like Comparettias, they grow on slender and decaying twigs and refuse the enticements of pots or baskets.

Coastal or lower zone Orchids are almost invariably inhabited by ant colonies, the Orchid providing by its matted roots an easy nest, and the ants by the simple fact of habitation furnish abundant nourishment. This is at least the case with the Pseudomyrmes, though some ants are, of course, destructive to Orchids. Another group of ants (Camponotus ?), make use of Orchid roots to raise Coccid larvæ on, and then, of course, in due time the plant succumbs. Sometimes a very chain of symbotic association takes place. In the Turialba region, there is a tall-growing Epidendron (Barkeria sp. ?) whose roots invariably contain an immense ant's nest, which has always in close vicinity a wasp's nest, and that again a bird's nest, some member of the Tyrannidæ, usually Tyrannus melancholicus, T. satrapa, or occasionally Rhynchocyclus cineriventris. This, on the Atlantic side, is the parallel to the well-known case of the Bull's-horn thorn Acacia, Pseudomyrmi and the Tyrannus on the Pacific coast, where it is a much more common object, and intrudes itself on every traveller. One soon learns not to brush against a "Corinzuelo," as the Acacia is termed.

Coryanthes has not been recorded from Costa Rica before. Very fortunately one found in the Estrella Valley has travelled across successfully, and is thriving well at Kew. It will probably prove to be a southern species; endemic forms are not likely to be found in either coastal zone. This is another great ant carrier, but I do not think it a necessary symbiosis as seems to be the case with Diacrium.

Costa Rica will undoubtedly provide many dozen new species of Orchids, as more intensive exploration is undertaken, mostly, of course, small, mainly

Pleurothallidæ. The districts that have been worked systematically are few and small in area. Unfortunately no collections are available in the country for reference by the few people who interest themselves in this delightful group. A very large proportion of the plants that are sold in the streets by itinerant vendors perish for the lack of a little sympathetic consideration of their modest requirements. Stout-hearted Orchids, like Cattleya Skinneri, Stanhopeas, and some of the Epidendrums, will defy anything but an axe; Miltonia, Odontoglossums, Warscewiczellas, and other similar plants will do equally well, even in a town house, in Costa Rica, if not completely neglected, yet are seldom seen as thriving specimens.

A walk in any of the districts where Orchids occur, mostly within reach of the town, is invariably fascinating. All the senses are delighted, for the air at 4,000 to 5,000 feet in the woods is fresh and invigorating. Bird life abounds, and in the morning many fine songsters may be heard. Mammalian life is rarely to be observed, an occasional squirrel being the only likely thing to be seen, unless one is away in the real bush, and even then casual encounters are rare. Everywhere in Costa Rica magnificent panoramas unfold; every view has for background the purple blue of forest-covered hills, excepting in some of the central southern districts where large areas have been denuded of forest and are now bare or sparsely covered by a low straggling bush. Few true xerophytic forms occur here as yet, owing to the recent creation of these conditions.

AN EPIPHYTIC HOST.—Dichæa is a small Tropical American epiphytic genus closely allied to Maxillaria, but differing in its caulescent habit and the total absence of pseudobulbs. The leaves are short, and arranged in two rows, which suggested to Lindley the generic name. The species usually grow in humid localities, and it is curious to note that two Jamaican species have been observed as hosts of other epiphytes. The examples are preserved at Kew. In the first case, we find two small seedling Tillandsias growing on the lower part of the stem of Dichæa muricata, the specimen having been gathered by Purdie in 1846. In the second, there are two small plants of Pleurothallis ruscifolia growing on the stem of Dichæa Morrisii, collected by Sir Daniel Morris in 1885, and thus we have the unusual spectacle of one Orchid growing epiphytically upon another. All originated from seeds which were doubtless blown into the leaf sheaths of the Dichæa, and there found suitable conditions for germinating, and as the Pleurothalli have each three stems it is evident that germination commenced while the Dichæa leaves were still active. The occurrence is doubtless accidental, for epiphytic Orchids will grow wherever they find a congenial situation, but we do not remember to have met with another case of double epiphytism in the family. R.A.R.

FERTILISATION OF SERAPIAS.

SERAPIAS is a small South European genus of Orchids whose flowers are certainly visited by insects, for natural hybrids are occasionally found, both of Serapias itself and of hybrids with two or three species of Orchis which grow in the same district. Mr. J. Treherne Moggridge once found an insect, Ceratina albilabris, in a flower of Serapias cordigera with two pairs of pollinia of S. lingua attached to its head. Col. M. J. Godfery has recently paid some attention to the subject, and remarks that although he has seen some hundreds of plants of both S. cordigera and S. longipetala, he never had the good fortune to see any insect actually enter the flowers (*Gard. Chron*,, 1920, ii. p. 70). A lucky accident, however, has thrown light on the question. In April last he saw a small bee crawling on some specimens of S. cordigera gathered the previous day, and it had a pair of pollinia of this Serapias attached to its head. A few days later one was found inside a flower of S. cordigera with two pairs of pollinia attached, and in both cases the bee was found to be the male of Osmia leiana. A month later, in the late afternoon, he gathered spikes of S. longipetala in the hope of finding a bee in one of them. A bee was noticed in one flower, which was placed carefully in a glass-lidded box. Next morning the bee was still in the flower, and when the sepals were drawn apart with a pair of forceps, he slowly and reluctantly began to move, stretched himself and becoming wide awake, suddenly realised that he was a prisoner, and searched eagerly for a way of escape. It was a male of the same bee, and had a pair of pollinia of S. longipetala attached to its head. Two more bees of the same species were found on a gauze fly-curtain over the window, and these are believed to have come from the other flowers gathered. Col. Godfery remarks: "Apparently the male Osmia leiana makes a practise of sleeping in the tubular flowers of Serapias, which are admirally adapted for the purpose. Both S. cordigera and S. longipetala are evidently visited and fertilised by the same bee, which would account for the occasional appearance of hybrids between them."

Col. Godfery also alludes to the fact that Hermann Mueller, on several occasions, found a small bee in a torpid condition in the slipper of Cypripedium Calceolus in the early morning, and attributed its drowsiness to the intoxicating effect of the honey in the flower, but he remarks that it is more probable that the insect was simply asleep. He suggests that fertilisation may sometimes occur through insects utilising flowers as a safe hiding place for a night's lodging.

We may add that the small bee known as Ceratina albilabris is figured,

natural size and in colour, by Moggridge (*Fl. Mentone*, t. 16), together with Serapias cordigera, in the flowers of which it was found with the pollinia of S. lingua attached to its head, so that this insect may be the agent by which S. ambigua, Rouy, the natural hybrid between the two species, is produced. Camus records five other natural hybrids of Serapias, but not one between S. cordigera and S. longipetala. He also records eleven natural hybrids between Serapias and Orchis, and the above observations might suggest that after visiting the Orchis flowers by day the bees retire to the Serapias flowers by night. At all events Moggridge states that all the species of Serapias are absolutely sterile when unvisited by insects. It is clear that we have not yet got to the end of this very interesting question, for Delpino, according to Mueller, states that Serapias longipetala is visited by bees in the west of Liguria, though no further details are given. R.A.R.

DENDROBIUM PRIMULARDII.—This name has been given to distinguish a supposed natural hybrid Dendrobium which has long been known, though, in face of a little uncertainty about its origin, no name had been proposed for it. It flowered in the collection of Captain W. Horridge, Bury, in March, 1916, and when noting a specimen sent to us (*O.R.*, xxiv. p. 96) we mentioned its probable identity with a Dendrobium which flowered with Messrs. Cypher & Sons, in March, 1899. In April of the present year it was exhibited by Capt. Horridge at a meeting of the Manchester Orchid Society, and received an Award of Merit, but as it was still without a name, that of D. venustum was given in the report. Unfortunately, this name had already been used for a Siamese species, D. venustum, Teijsm. & Binn. The *Gardeners' Chronicle* suggests a comparison with D. cucullatum, and remarks (1920, i. p. 308) that in any case the name gives an instance of the inadvisability of giving scientific names to hybrids. We do not accept the conclusion, for the mistake is of a different kind. In any case the plant is not D. cucullatum, R.Br. (*Bot. Reg.*, t. 548), which has small flowers, borne at the same time as the leaves, and has since been regarded as an undeveloped form of D. Pierardii. It was so regarded by Lindley when describing D. primulinum, though he remarked, "We possess no authentic specimen; the barbarous specimen in the *Botanical Register* offers no assistance in a critical enquiry." Lindley inferred that D. primulinum was a native of Sikkim, and spoke of Dr. Hooker's dried specimens gathered in the hot valleys there. King and Pantling, however, speak of it as no longer occurring there, and we have shown that Dr. Hooker's specimens belong to D. Pierardii (*O.R.*, x. p. 42). Captain Horridge's plant came from Burma, where the two species may grow together, for Dr. Kerr collected both at Doi Sutep, in the Chengmai district of Burma, though whether actually intermixed is not recorded.—R.A.R.

THE ORCHID REVIEW 25 YEARS AGO.

IN order to appreciate the great changes that have taken place in our Orchid collections during the last quarter of a century, it is interesting to glance back at the *Orchid Review* in the corresponding period in 1895. Brassocattleya, at all events in its modern significance, did not then exist, and we find the R.H.S. giving a First-class Certificate to what was termed "Lælia Digbyana." Other recipients of the award recorded at this period were Cattleya Eros, C. Fowleri, and a form of C. Dowiana with sulphur white sepals and petals, Læliocattleya Clonia, Odontoglossum Wattianum, Phalænopsis Luedde-violacea, Vanda cœrulea, and a plant exhibited as Cypripedium Lord Derby, the latter under a change of name, however, which failed to settle the matter. Nomenclature difficulties were not wanting, even then, and we find a spirited discussion on the question.

Some very interesting Orchids were exhibited, and the record for the period includes two plants of Cycnoches chlorochilon, one with male and the other with female flowers, and the charming Rhynchostylis cœrulea with sixteen spikes, which gained a Cultural Commendation. A plant of Lælia monophylla with over forty flowers received an Award of Merit, and among others which gained the same distinction were the graceful, white Cœlogyne Veitchii, Dendrobium Hookerianum and D. speciosissimum, the latter a Bornean species now, we fear, lost to cultivation, Angræcum Eichlerianum, Maxillaria fucata, and several Læliocattleyas. Other exhibits included a plant of Catasetum Bungerothii with a spike of twelve flowers, Cattleya Rex, Habenaria rhodochila, H. carnea, and its white variety nivosa, while Botanical Certificates went to Aëranthes grandiflora, Maxillaria striata, M. Hubschii, Polycycnis Lehmannii, and half a dozen others.

The Orchids figured were Coryanthes macrocorys, Dendrobium atroviolaceum, and Trichopilia suavis, and we find articles on the Vanillas of Commerce, Miltonia spectabilis and its varieties, Orchid Culture in Florida, by Mr. T. L. Mead, An Orchid Collection in Trinidad, by Mr. T. I. Patter, An Amateur's Notes, and An Ideal Cypripedium List, by E. H. Woodall, in which twenty-two kinds are enumerated "out of how many hundreds?" It would be different to-day, though a few of the forms would remain in an equally select list. Some eight new hybrids were described, and fifteen species are included in a summary of recently-described novelties. Other notes include, Cypripedium Harrisianum virescens, a curious green sport, Cycnoches Warscewiczii and C. aureum, an account of two much-confused species with their sexual forms, Oncidium Gardneri flavescens, Cattleya Lueddemanniana, C. Dowiana, and other current topics. The occurrence

of a female flower of Cycnoches pentactylon at Kew, on a plant which had previously only borne males, is recorded, and there is also a List of Orchid Portraits from current periodicals, over half of which no longer exist. The Calendar of Operations was in the capable hands of Mr. H. A. Burberry, who had charge of the Right Hon. Joseph Chamberlain's collection at Highbury, Birmingham.

A long article entitled, "Cattleya—What constitutes a Species?" may be said to have finally exploded the old botanical idea that the numerous labiate Cattleyas were forms of a single, widely diffused species, for it was shown that each had its own characters, varieties, and geographical distribution, and the only way to get an intelligible nomenclature was to recognise them as distinct. A similar confusion in the C. guttata group was also pointed out. A classified enumeration was given, in which 44 distinct species were recognised, natural hybrids being excluded.

ODONTOCIDIUM THWAITESII.—A very interesting novelty, raised in the collection of R. G. Thwaites, Esq., Streatham, from Oncidium tigrinum and Oncidium crispum, and exhibited at the R.H.S. meeting held on July 29th last. It shows most of the Oncidium influence, especially in the shape and colour of the flower, though both are somewhat modified. The sepals and petals are primrose yellow, with confluent lines of light sepia red on the lower two-thirds, while the expanded lip is primrose yellow, with some red markings on the crest, and a reddish blotch on each side of the isthmus. It will be interesting to see what it develops into when the plant becomes strong.

CATTLEYA ALBANIA.—A charming albino, raised by Messrs. Hassall & Co., Southgate, from C. O'Brieniana alba and C. Loddigesii alba, the latter a handsome plant sometimes known as C Loddigesii alba Stanleyi. The flower has much of the general character of the latter, and the colour is pure white, with some light yellow on the disc of the lip.

FERTILITY OF HYBRIDS.—In connection with this question, it would be interesting to have a few observations of the behaviour of Orchid hybrids under natural conditions. We have observed that the large clump of Orchis latifolio-maculata on the Kew rockwork has again this year produced an abundance of capsules, and the same may be said about the undoubted hybrid Orchis folioso-maculata, which is growing close by. On the other hand, the plants of Orchicœloglossum mixtum, growing rather isolated, had not a single good capsule, but whether this was due to the lack of insect visitors, cannot be said. Let us add :—

THE MENDELIAN PROBLEM CRYSTALLISED is—What does nature do with her hybrids after making them ?—R.A.R.

OBITUARY.

JOSEPH CHARLESWORTH.—Orchidology has sustained a severe loss by the death of Mr. Joseph Charlesworth, head of the firm of Messrs. Charlesworth & Co., Haywards Heath, which took place on August 2nd last. The deceased, who was in his seventieth year, had suffered for some time from bronchial trouble, and had made arrangements

THE LATE MR. JOSEPH CHARLESWORTH.

to go away for a rest and change, when a relapse occurred, and the end came rather suddenly from heart failure. To modern Orchidists, Mr. Charlesworth was known as one of our most enthusiastic and successful hybridists, but his early years were spent in connection with his father's wool business, to which he ultimately succeeded, though a passion for Orchids afterwards changed his whole career. It must have been over thirty years ago that we first met Mr. Charlesworth in London, and we

have heard him speak of some of his early experiences, and of a trip to the Andes, undertaken partly with a view to study the plants in their native surroundings, but the details are not very clear after this period of time. In 1887, however, we find him established at Heaton, Bradford, as an Orchid grower and importer, and the business is spoken of as started some years ago by Mr. J. Charlesworth.* The site was a gentle slope behind the reservoir, and the arrangements included two long ranges of Odontoglossum houses, and a longer and loftier range for intermediate and warm house plants, all the latest improvements being incorporated so as to secure economy and the best results. There were large importations of Odontoglossums and New Grenadan Cattleyas, collected by Mr. W. Hennis, with a lot of established Cypripediums, Phalænopsis, and other miscellaneous East Indian Orchids.

It was probably at about this period that Mr. Charlesworth made his trip to the Andes, for in 1889 we find an account of the progress of the establishment, and mention is made of the Ecuadorean Odontoglossums Hallii, Edwardii, cirrhosum, and Oncidium macranthum as selected by Mr. Charlesworth himself during a trip undertaken both for the purpose of observation and collecting. There were large stocks of imported and established plants, but no mention is made of hybridisation, a work that we believe was taken up in earnest at a slightly later date.

Somewhat later the business of Mr. E. Shuttleworth, of Clapham, originally a collector for Mr. W. Bull, of Chelsea, was amalgamated with that at Heaton, under the name of Charlesworth, Shuttleworth & Co., and for a time both establishments were retained. It was during this period that the handsome Cypripedium Charlesworthii was imported, though, curiously enough, the nature of the acquisition was not understood until the plant flowered for the first time. This was in September, 1893, and it created quite a sensation on account of the rose-coloured dorsal sepal and ivory white staminode, characters not previously known in the genus. We shall never forget our astonishment at seeing the flower, though prepared by Mr. Charlesworth for a surprise when unpacking the box. It was then named, and a few days later was unanimously awarded a First-class Certificate by the R.H.S.

It was in 1894 that we had the pleasure of seeing the Heaton establishment for the first time, and we then remarked that the work of hybridising had been taken up extensivly, and there was a very large number of seedlings in various stages of infancy, including a lot of Cattleya, Lælia and Sophrocattleya crosses, as well as many Cypripediums, some of the latter being

* *Gard. Chron.*, 1887, ii. pp. 430-431. Owing to an identity of initials we have been credited with the authorship of this article, but we must disclaim the honour, and it was not until several years later that we visited the Heaton establishment for the first time.

progressing towards maturity. Mr. Charlesworth took up the work with characteristic thoroughness, and we well remember the large number of seed capsules, and the arrangements of the seedling house, then novel and experimental, so that no details were given. We may now recall that the seeds were sown upon rough sections of willow poles, these being placed in small pots on a layer of fine potsherds, and covered by a small square of glass, the whole being then placed in a series of propagating frames. We saw batch after batch of healthy seedlings, but the practice was afterwards superseded by that of sowing on canvas over a ball of sphagnum moss. Cypripediums, however, were still sown on the compost of established plants, for Mr. Charlesworth had already found that these were not amenable to the new method.

The partnership just mentioned soon terminated, and the firm assumed the title of Messrs. Charlesworth & Co. The production of hybrids in quantity quickly necessitated an extension, and when seven years later we again visited the establishment we found an additional block of six houses had been built, while the seedlings could be counted by thousands in every stage of development, including a few small seedling Odontoglossums (*O.R.*, ix. pp. 298-302). A few interesting hybrids were then in flower or bud. A recent development had been the culture of Orchids in leaf-mould, and Mr. Charlesworth had taken it up with characteristic energy, though he ultimately found disadvantages which led to its abandonment.

We are a little uncertain when Mr. Charlesworth's first seedling flowered, because a few early ones were purchased, but at the Temple Show in 1898, a group was shown which included Epilælia Charlesworthii, Lælia cinnabrosa, Læliocattleya Admiral Dewey, Lc. radiata, and Lc. Schilleriana, all we believe raised in the establishment. The last-named was a particularly interesting plant, long known in a wild state and of disputed origin, and we remarked (p. 168), "Six years ago Messrs. Charlesworth crossed Lælia purpurata with the pollen of Cattleya intermedia, and now a plant has flowered, and proves precisely identical with the wild plant." This experiment cleared up an old confusion with the allied Læliocattleya elegans.

From this time onwards progress was rapid, and after a visit to the establishment, in 1906, by Mr. and Mrs. Thwaites, the latter wrote: "Here is a veritable seedling land; thousands and thousands of them; and looking as healthy and happy as possible. Mr. Charlesworth is raising the Odontoglossums as freely as the Cattleya and Lælia seedlings: and this wonderful success is no chance matter either, but is the outcome of years of study and experiment—adding knowledge bit by bit, gaining new light, even from failure—till now the question is not *how* to raise but *what* to raise, to get the best possible results . . . Mr. Charlesworth is a real enthusiast, and seems to find great pleasure in his work, a pleasure easily understood, especially

as it is crowned with such success" (*O.R.*, xiv. pp. 196-197). The remark about seedling Odontoglossums was fully justified, for the *Orchid Stud-Book* shows that up to the end of the year a dozen distinct crosses had flowered, and two Odontiodas, the latter being O. heatonensis and O. Bohnhofiæ.

The firm continued to flourish at Heaton, but constantly increasing business soon necessitated an extension of premises, and this led to the acquisition of a small branch establishment at Haywards Heath. Here the climatic conditions proved so much superior to the Heaton locality that Mr. Charlesworth decided to lay out an entirely new nursery, to which all the plants were removed, and the old business was relinquished in September, 1908. An account of the new establishment has been given (*O.R.*, xvii., pp. 170-113, 206-208), and we need only mention here that it consisted of a central corridor, 250 feet by 12, extending from the Office to the potting shed, with twelve houses, each 100 feet long, running right and left of the corridor, while a block of eight seedling houses of the same length extended right and left of a second corridor. All the latest improvements were incorporated, the establishment being a model one in every respect.

Subsequent developments have testified to the progress of the establishment, some of which are recorded in a later article (*O.R.*, xviii. pp. 266-271), at which time two new generic hybrids were in bloom, namely Oncidioda Charlesworthii (C. Nœtzliana × O. incurvum), and Miltonia Harwoodii (C. Nœtzliana × M. vexillaria), both plants of considerable merit. It was then remarked: "The raising of Odontoglossums and allied genera has become a very important business, and there are thousands of seedlings in every stage of existence. Messrs. Charlesworth are reducing it to a system." Just previously they had flowered Oncidium hybridum (tigrinum × lamelligerum), the first artificial hybrid in the genus. By this time hybrids of very mixed composition were being raised, and somewhat later we were able to give particulars of some remarkable polymorphic Odontiodas, of which we saw over 140 spikes all flowering together. Some remarkable developments in Odontoglossum were also noted, and many interesting experiments were seen in progress (*O.R.*, xxi. pp. 137-140).

For a long time the practice of sowing Odontoglossum seeds upon the compost of established plants was followed, but at length, as the result of many experiments, the system of Noel Bernard of sowing the seeds in sterilised tubes with the necessary symbiotic fungi was developed on a commercial scale, and by this pure culture system the successful germination was reduced almost to a certainty, if the seeds were good. We have examined these fungi, with Mr. Charlesworth, on several occasions, also a beautiful series of microscopic slides, but we have not felt at liberty to give the details of what is a really remarkable development, and it has been remarked by a distinguished fungologist that "Mr. Charlesworth seemed to

know his individual fungus cultures as well as he did his favourite Orchids." One of his most remarkable successes was the development of the albino race of Odontoglossums from O. crispum xanthotes crossed with other albinos. These have been a constant feature of the fine groups exhibited during recent years, and a number of details have been given (*O.R.*, xxiv. pp. 164-167). It is a triumph of hybridisation, representing years of perseverance and experiment, with which Mr. Charlesworth's name will ever be associated.

Of late years Mr. Charlesworth has paid a good deal of attention to intercrossing Odontoglossum and Miltonia, with a view to developing a race of hybrids with the character of the former but adapted for growing in a warmer temperature, for the American climate is as a rule too hot for Odontoglossums. At the last Chelsea show he exhibited four brilliant Odontonias, one of which gained a First-class Certificate, and another a Preliminary Commendation (see pp. 116-117), and less than three weeks before his death the brilliant Vuylstekeara Brewii, in which the three genera, Cochlioda, Miltonia and Odontoglossum are combined, received an Award of Merit (see p. 150).

To enumerate a tithe of the interesting and brilliant hybrids raised by Mr. Charlesworth would take a great amount of space, but in addition to a few mentioned above we may recall the brilliant Odontioda Charlesworthii, Miltonia Charlesworthii, Eulophiella Rolfei, and Charlesworthiara Alpha, the latter including the three genera Cochlioda, Miltonia and Oncidium, and the first member of an artificial genus dedicated to Mr. Charlesworth to which all subsequent combinations between the three genera will be referred. In the popular Cattleya group his achievements have been remarkable, for he was ever out for improvement, and any good hybrid at once became a subject for further experiment. One ideal was a good yellow Cattleya, and no opportunity was lost of making a cross that promised the desired result. Improvements in shape and colour were ever in view, and the large number of certificated hybrids are a tribute to the good judgment and perseverance of their raiser.

Mr. Charlesworth has been a member of the R.H.S. Orchid Committee ever since the beginning of 1902, when he was elected for the first time. He was also for many years a member of the Manchester Orchid Society and a donor of valuable prizes, and he presented a £100 cup for the best group of Orchids staged by amateurs at the International Horticultural Exhibition held in London in 1912.

We shall never forget the many delightful hours spent in Mr. Charlesworth's company, and his enthusiasm over the investigation of the different stages of the life history of his pets, for he was much more than a mere raiser, and had mastered many of the details of microscopical technique. One

rather hopes that his excellent work in this direction will not be lost. We may conclude with a tribute to Mr. Charlesworth from a brother hybridist, Mr. A. McBean: "His productions have given so much pleasure to so many people that I believe all Orchidists will agree ungrudgingly that we have lost the greatest Orchid hybridist in the world, and one whose example as a persistent and patient worker may well be followed. Early in his career Mr. Charlesworth realised, not only the necessity of producing hybrids as a race of plants better fitted to our climate, but for the vast future they would open. His fertile mind was ever alert, and he was engaged in producing Orchids that would prove amenable in almost every clime, and in this matter he was so enthusiastic that his inspiration will not soon lose its effect on those privileged to know him. . . . Mr. Charlesworth's name will remain so long as Orchids are cultivated."

Mr. Charlesworth was laid to rest in Haywards Heath Cemetery on Thursday, August 5th, when many beautiful Orchid and other wreaths were sent, and among those present, beside the immediate relatives, were Messrs. J. M. Black, D. A. Cowan, A. G. Ellwood, A. McBean, R. A. Rolfe, F. K. Sander, H. H. Smith, and G. Wilson.

LISSOCHILUS SPECIOSUS, R. Br.—It is interesting to record that this handsome yellow Lissochilus, the original species of the genus, has again appeared in cultivation, flowers having been sent for determination from the collection of W. R. Lysaght, Esq., Castleford, Chepstow, by Mr. T. W. Briscoe. It was originally introduced to cultivation by Mr. Griffin, of South Lambeth, with whom it flowered as long ago as 1821, when it was figured under the above name (*Lindl. Coll. Bot.*, t. 31; *Bot. Reg.*, t. 573). It had originally been discovered in South Africa by Thunberg, and described from dried specimens in 1781, under the name of Satyrium giganteum, L. fil. (*Suppl. Pl.*, p. 402). As it was clearly not a Satyrium, Robert Brown formed the new genus Lissochilus for its reception, the name being given in reference to the smooth disc of the lip. Lindley's painting shows about fifteen flowers and buds, and from the text we learn that the spike was four feet high, and remained about two months in beauty. The plant now under notice was received from South Africa six years ago, and this year has produced a spike of seven feet in height, and about forty flowers, twenty of which were expanded at the same time. The species is widely diffused in South Africa, extending from the Uitenhage eastwards to the Transkei and Natal, and northwards to Somerset and the Transvaal, while it occurs again in Rhodesia. The flowers are about two inches across, the sepals light green, the petals bright yellow, and the side lobes of the lip are suffused with purple. The re-appearance of the species in cultivation is interesting.

R. A. ROLFE.

ORCHIDS AT KEW.

SEVERAL interesting rarities are flowering at Kew, and among them the striking Costa Rican Pleurothallis grandis, which was recently figured in the *Botanical Magazine* (t. 8553). It is one of the giants of the genus, and bears a long, one-sided raceme of some 27 brownish green flowers. Among other Costa Rican introductions of Mr. C. H. Lankester may be mentioned the charming little P. lateritia, which has been covered with a mass of its pretty reddish orange flowers, giving a very pretty effect. Masdevallia gemmata, corniculata, inflata, muscosa, and a few others are also in bloom, and two plants of the interesting little Sigmatostalix radicans are flowering in profusion. Near by are examples of the pretty rose-coloured Oncidioda Charlesworthii, Miltonia Regnellii, Clowesii, and forms of M. spectabilis, the white Maxillaria venusta, Odontioda Charlesworthii and Diana, Odontoglossum Uroskinneri and grande, Cochlioda vulcanica, Calanthe Dominyi, the first artifical Orchid hybrid, and a few other interesting Cool house Orchids.

In the Warm house are plants of Doritis pulcherrima, Arachnanthe Clarkei, Bulbophyllum Medusæ, with several of its Medusa-like heads of flowers, B. lilacinum, B. crassipes, B. hirtum with numerous spikes, B. calabaricum, a small African species, and a lot of Cypripediums, among which C. niveum and its very pretty hybrid C. Vipanii, C. insigne Sanderæ and a clear yellow form of C. Sanactæus may be mentioned.

The Cattleya group produces a constant succession of flowers, and includes C. Bowringiana and its hybrids C. Brownii and Wendlandii, the latter bearing three fine spikes, one with six flowers. Other good things are C. Atalanta, Læliocattleya Nysa, Priam and amanda, Brassocattleya Veitchii, Epidendrum ciliare and Hartii, with a few others. A plant of Dendrobium formosum now finely in bloom is very effective. The Pleiones are beginning to bloom, and are among the most attractive of autumn-flowering plants. There are also several yellow-flowered Oncidiums, with the purple O. ornithorhynchum, one of the most distinct and attractive species in the genus when well grown.

The collection is rich in botanical rarities, some of which may be found at any season, and one of the most interesting of those just over is a plant of the rare Cycnoches pentadactylon, C. chlorochilon being also in bloom at the same time. The quaint and striking genus Stanhopea is well represented in the collection, and among those which have bloomed during the summer we may recall the showy S. tigrina, S. Wardii, S. inodora, S. bucephalus, and the rare and very pretty S. saccata.

AN ORCHID TENT AT CHELSEA.

LACK of space for staging the Orchid exhibits at the R.H.S. Spring Show has led to a suggestion that in future a commodious tent should be set apart for the purpose, so as to secure a more effective display. The desideratum is a liberal extent of frontage, so as to allow of an effective arrangement without overcrowding the plants. Great depth from front to back is not required, as a depth of over seven feet renders effective staging difficult, as well as proper attention to the plants. The provision of such a tent might necessitate some arrangement of the groups, but with the addition of suitable foliage plants as a background, and perhaps of other ways of utilising Orchids for decorative purposes, it is believed that a novel and very attractive feature might be secured. Something of the kind is much to be desired.

MASDEVALLIA ASTUTA, Rchb. f.—The discovery of an original painting of this Costa Rican Masdevallia recalls an old question as to its distinctness, and confirms the view we then took as to its being simply a form of the earlier M. erythrochæte, Rchb. f. As there is no published figure, it may be interesting to give the facts. It belongs to the section Saccolabiatæ, and was described in 1886 from materials sent to Reichenbach by Messrs. Shuttleworth, Carder & Co. In August of that year the firm sent living flowers and a leaf to Mr. Day, who made a painting (*Day Orch. Draw.*, li. t. 51), and sent on a flower to Reichenbach, who then described it, and in a letter to Mr. Day remarked that he was afraid Mr. Shuttleworth had been offended by his not having at once described some wretched materials of Carder's. He compared it with M. Gaskelliana, Rchb. f., described from the Gaskell collection in 1883, and of which the country was not stated. Of this there is a specimen at Kew from the original plant, as well as others of M. astuta received from Messrs. Shuttleworth, Carder & Co., and from Glasnevin, in 1889, and we are unable to distinguish either from M. erythrochæte, Rchb. f. The latter was described in 1882, from materials sent by Mr. F. Sander, said to have been imported from Central America. Whether M. erythrochæte occurs outside Costa Rica is not quite certain. Consul Lehmann is said to have collected it on the Candelaria Mountains there, and also very closely allied specimens in Antioquia, but what the latter really are remains uncertain, for they are not represented in the Lehmann Herbarium at Kew. The species is certainly polymorphic, but how far it extends in various forms to the Cordillera of South America remains to be proved.—R.A.R.

EPIDENDRUM ENDRESII.

CAN anyone tell us whether the charming little Epidendrum Endresii is still in cultivation? We have not seen it alive for a number of years, and it is one of those gems that ought not to be lost sight of, a point that may be realised by the annexed figure. Surprisingly little is known about its habitat, except that it is a mountain plant, and requires moderately cool temperature. Originally discovered in Costa Rica by Endres, who

FIG. 13. EPIDENDRUM ENDRESII.

failed to get plants home alive, it was introduced to cultivation by Consul Lehmann, and described by Reichenbach in 1883, being afterwards figured in the *Botanical Magazine* (t. 7855). The habit of the plant is well shown in our figure, and it is only necessary to add that the stems are some six to nine inches high, and the short distichous leaves have verrucose sheaths, while the flowers are white with a little purple on the front of the lip and column. The pretty little Epidendrum Veitchii was raised from E. Wallisii crossed with E. Endresii, and E. Veitchii recrossed with E. Endresii, by Messrs. Sander, gave another variable little hybrid which may be called E. Sanderi (*O.R.*, xiv. p. 181).

SOCIETIES.

ROYAL HORTICULTURAL.

The usual fortnightly meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on June 29th, when there was a rather small display of particularly choice Orchids.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, W. Bolton, R. G. Thwaites, Pantia Ralli, W. J. Kaye, F. K. Sander, C. H. Curtis, A. McBean, T. Armstrong and J. E. Shill.

FIRST-CLASS CERTIFICATES.

LÆLIOCATTLEYA SAN JUAN DELL VAR. (Lc. Aphrodite × C. Mendelii).—A superb hybrid, with light rosy mauve sepals and petals, and a broad ruby purple lip, with yellow lines in the throat. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

MILTONIA HARWOODII VAR. EXCELSIOR (C. Noetzliana × M. vexillaria var. Queen Alexandra).—A particularly fine variety, having large, deep rose-coloured flowers, most resembling the Miltonia parent in shape, and the lip broad, with some red lines on the disc in front of the yellow crest. Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM VICTORY VAR. SUPREME (crispum × Dreadnought).—An exceptionally large and beautiful variety, the flowers being over four inches across, and the lower two-thirds of the segments bright Indian red, with the margins and front of the lip white. Exhibited by Messrs. Armstrong & Brown, Tunbridge Wells.

AWARD OF MERIT.

ODONTIODA BLUE BIRD (Oda. Coronation × Odm. Armstrongiæ).—A handsome hybrid, having ruby-red sepals and petals, with a few transverse whitish lines and a few darker markings, and the front of the lip blush white. Exhibited by Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

MILTONIA HARWOODII VAR. EXCELSIOR.—To Messrs. Charlesworth & Co. for the finely-grown plant mentioned above.

SILVER FLORA MEDAL.

To Messrs. Charlesworth & Co., Haywards Heath, for a very fine group, largely consisting of Odontoglossums, Odontiodas and Miltonias, with Læliocattleya General Maude var. rubens (Lc. rubens Lambeauiana × C. Hardyana), an exceptionally fine form, and some beautiful examples of Cattleya Mendelii and C. Warscewiczii, the latter including the pink variety Mrs. E. Ashworth.

SILVER BANKSIAN MEDAL.

To Messrs. J. & A. McBean, Cooksbridge, for a good group of Odontoglossums and Odontiodas, with a few other interesting things.

OTHER EXHIBITS.

R. G. Thwaites, Esq., Chessington, Streatham, showed flowers of Odontocidium Thwaitesii (Oncidium tigrinum × Odontoglossum crispum), a very interesting hybrid of intermediate character.

A week later was held a great provincial show in the Sophia Gardens, Cardiff, the dates being July 6th to 8th, but the weather was very wet, and the Orchid exhibits comparatively few. The awards were as follow :—

GOLD MEDAL.

To Messrs. James Cypher & Sons, Cheltenham, for a fine group of Orchids and stove plants, the former including a number of well-grown Cattleyas, Odontoglossums, Oncidiums, and other subjects, and the whole group very effectively displayed.

SILVER-GILT FLORA MEDAL.

To Messrs. Stuart Low & Co., Jarvisbrook, for a fine group of Orchids and Carnations, among the former being some good Odontoglossums, Odontiodas, Cattleyas, Oncidium Papilio, and others, brightened up with a number of the richly-coloured Renanthera Imschootiana.

SILVER-GILT GRENFELL MEDALS.

To Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. J. Collier), for a handsome group of Orchids, including a beautiful Læliocattleya Canhamiana alba, Cattleya Warscewiczii Mrs. E. Ashworth, Odontoglossum Gatton Emperor, Oncidium Papilio, Miltonia Charlesworthii, and others, in well-grown examples.

To Mrs. J. J. Neale, Oxton, Kenton, near Exeter (gr. Mr. E. Swinden), for a good group of Orchids and Insectivorus plants, the former including good examples of the graceful Brassia verrucosa, Thunia Marshalliana, Oncidium Papilio, and the brilliant Renanthera Imschootiana, altogether a very interesting exhibit.

A very beautiful basket of cut Orchids was staged by Mr. W. Treseder, Cardiff, forming a very effective exhibit.

After an interval of again only a week, an ordinary meeting was held at the Royal Horticultural Hall, Westminster, on July 13th, when a few choice and interesting Orchids were staged.

Orchid Committee present : Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Frederick W. Moore, Arthur Dye, C. J. Lucas, Walter Cobb, J. E. Shill, F. K. Sander, C. H. Curtis, and Pantia Ralli.

AWARDS OF MERIT.

CATTLEYA HESPERUS (Hardyana × Enid).—A finely-shaped and handsome hybrid, having blush-coloured sepals and petals, with rosy mauve veining, and a deep purple-crimson lip, with yellow throat and some golden veining on the disc. Exhibited by Baron Bruno Schröder.

ODONTOGLOSSUM ELDORADO (eximium × Lakiniæ).—A large and handsome hybrid, with white ground colour, large violet blotches on the sepals and lip, and a number of much smaller spots on the petals. Exhibited by W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour).

ODONTONIA BEDFORDIÆ (M. Bleuana × O. amabile splendens).—A charming hybrid, which has retained much of the Miltonia shape, while the ovate sepals and petals are white, with some light violet markings at the base, and the broad lip white with radiating dotted lines on the disc. Exhibited by Messrs. Charlesworth & Co.

VUYLSTEKEARA BREWII (Odontioda Brewii × Miltonia vexillaria).—A striking hybrid, most resembling the Miltonia parent in shape, and having ruby red sepals and petals, and the lip veined and tinged with rosy-mauve on a white ground, and the crest yellow. Exhibited by Messrs. Charlesworth & Co.

OTHER EXHIBITS.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. H. Redden), sent Odontioda Sensation var. Empress Eugenie, O. Rufus, and O. Vesper, the latter primrose, with pale reddish veining and tinged with lilac on the margin.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood), sent a fine example of Bulbophyllum macrobulbon, Cirrhopetalum Mastersianum, and two fine varieties of Miltonia vexillaria.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), sent a fine spike of Sophrocattleya Faboris Dell var.

Messrs. Charlesworth & Co., Haywards Heath, sent a fine Miltonioda Harwoodii, with examples of the parents of the certificated hybrids shown.

Messrs. Flory & Black, Slough, sent Disa Italia (Blackii × grandiflora), and a richly-coloured hybrid Odontoglossum.

At the meeting held on July 27th there was a very small display.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec), W. Bolton, J. W. Potter, Sir Harry J. Veitch, W. H. White, W. J. Kaye, C. H. Curtis, J. E. Shill, W. H. Hatcher, A. McBean, F. K. Sander, E. R. Ashton, Pantia Ralli, R. A. Rolfe, C. J. Lucas, and R. Brooman White.

AWARD OF MERIT.

SOPHROCATLÆLIA LAURA (Pandora × Marathon).—A large and richly-

coloured hybrid, having rosy mauve sepals and petals of good shape, and a ruby crimson lip with yellow veining in the throat. Exhibited by Messrs. Charlesworth & Co.

OTHER EXHIBITS.

W. R. Fasey, Esq., The Oaks, Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour), sent Odontoglossum St. George, Fasey's var., and the richly-coloured O. Woodroffeæ, in well-grown examples.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Taylor), sent Odontioda Brewii var. nigra, having quite black-purple sepals and a lilac lip with some purple markings.

Baron Bruno Schröder, Heath Lodge, Englefield Green (gr. Mr. J. E. Shill), sent Cattleya Eleanor Dell var., a very handsome variety, with white sepals and petals, and the front of the lip rich violet-purple.

Messrs. Charlesworth & Co., Haywards Heath, sent Odontioda illustris (Oda. Charlesworthii × Odm. illustrissimum), bearing a fine spike of eighteen richly-coloured flowers.

Messrs. J. & A. McBean, Cooksbridge, sent Odontoglossum Fletcherianum var. nigrescens (Edwardii × cirrhosum), bearing two fine panicles of numerous very dark flowers.

Messrs. Sanders, St. Albans, sent Læliocattleya Glory (C. fulvescens × Lc. Thyone), buff yellow, with some reddish veining in the throat, and Lc. Enchantress (Lc. bletchleyensis × C. Rex), the latter showing unmistakably the influence of the rare Cattleya parent in the lip.

Owing to the Hall being in the hands of the painters, there was no meeting on August 10th, but the Committee sat upstairs to adjudicate on plants submitted for Certificate.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), F. J. Hanbury, Pantia Ralli, F. K. Sander, C. H. Curtis, Walter Cobb, and Arthur Dye.

Before the ordinary business the Chairman alluded to the loss the Committee had sustained in the death of Mr. Joseph Charlesworth, one of its oldest members, and one to which Orchid lovers owed so much for his researches in hybridisation. It was unanimously agreed that a letter of condolence should be sent to the relatives in their great loss.

AWARDS OF MERIT.

CATTLEYA DIANA MAJESTICA (Dowiana aurea × Sybil var. Lord Kitchener).—A handsome thing, with broad, light canary-yellow sepals and petals, and a vinous purple, very undulate lip, with a yellow disc. Exhibited by Messrs. Hassall & Co.

LÆLIOCATTLEYA BOMBARDIER (C. Adula × Lc. Geo. Woodhams).—A fine hybrid, with rosy mauve sepals and petals, and the lip purple-crimson,

with some yellow veining and yellow blotches on the sides of the throat. Exhibited by W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour).

VUYLSTEKEARA MRS. PITT (Odontonia Lælia Sander × Odontioda Charlesworthii).—An interesting hybrid, with the general Odontoglossum shape, and having vinous purple sepals and petals with a yellow margin, and a cream white lip blotched with purple. Exhibited by H. T. Pitt, Esq.

OTHER EXHIBITS.

A vote of thanks was accorded to H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood), for an interesting collection of rare species, including Cycnoches chlorochilon and C. stelliferum, Catasetum fimbriatum, Habenaria rhodochila, Angræcum Scottianum, Dendrobium ciliatum, Bulbophyllum barbigerum, and Epidendrum umbellatum.

Messrs. Hassall & Co., Southgate, sent Cattleya Adula var. Dreadnought, a large and richly-coloured form.

At the meeting held on August 24th there was a moderate display of choice Orchids, and the Orchid Committee were represented as follows: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), W. Bolton, J. E. Shill, R. A. Rolfe, F. J. Hanbury, Stuart H. Low, F. K. Sander, A. McBean and C. H. Curtis.

FIRST-CLASS CERTIFICATE.

CATTLEYA HELIODOR (iridescens × Venus).—A very handsome hybrid, with deep yellow sepals and petals, and a three-lobed lip, the elongated front lobe being orange-yellow with an expanded bright purple apex, and the side lobes, short, purple, and appressed to the white column. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

AWARDS OF MERIT.

BRASSOCATLÆLIA BLENHEIM ORANGE (Bcl. Rowena × C. Dowiana aurea).—A handsome hybrid, with clear orange-coloured sepals and petals, and a cherry-red, undulate lip, with yellow lines on the disc. Exhibited by the Duke of Marlborough.

CATTLEYA TRIUMPHANS BLENHEIM VAR. (Dowiana aurea × Rex).—A charming variety with cowslip yellow sepals and petals, and some yellow veining and cherry-red markings on the lip, the latter showing very clearly the influence of the second parent. Exhibited by the Duke of Marlborough.

ODONTOGLOSSUM MIGUELITO FASEY'S VAR. (Doris × Dora).—A large and beautiful variety, heavily blotched with claret colour on the lower part of the sepals, and tinged with mauve above, while the apex of the lip is white. Exhibted by W. R. Fasey, Esq.

SILVER FLORA MEDAL.

To the Duke of Marlborough, Blenheim, Woodstock (gr. Mr. J. T.

Barker), for a fine group of about thirty home-raised hybrids, including Brassocatleya Penelope (C. Fabia × Bc. Maroniæ), purple with a yellow disc to the lip, Bc. Enid-Hye, Bc. Ida and var. Sunset (Bc. Pluto × C. Dowiana aurea), Brassocatlælia Virginia, blush white tinged with rose and the disc of the lip yellow, Læliocattleya Fazeana (C. Fabia × Lc. Schulzeana), light mauve with richly coloured lip, Lc. Soulange with five fine flowers, Lc. Carmencita (Lc. luminosa × C. Dowiana aurea), rosy lilac with a fine purple lip, the handsome Cattleya Weedonaurea and Blenheim var., Cypripedium F. M. Abbott, a richly-coloured hybrid, and other handsome things.

SILVER BANKSIAN MEDAL.

To Messrs. Sanders, St. Albans, for a good group, including a fine Læliocattleya callistoglossa, Lc. fulva (C. fulvescens × Lc. Golden Oriole), flame-coloured with rosy veins on the lip, Cattleya Wavriniana, Cypripedium Maudiæ, C. insigne Sanderianum. C. Rossetti, C. Germaine Opoix, Cœlogyne speciosa, C. Sanderæ, C. sulphurea, Masdevallia Harryana, Pleurothallis gelida, Maxillaria venusta, and others.

GENERAL EXHIBITS.

W. Waters Butler, Esq., Southfield, Edgbaston, sent Læliocattleya Butleri (Lc. G. G. Whitelegge × C. Hardyana), bearing three finely-shaped and richly-coloured flowers.

W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour), sent Odontoglossum Winifred (illustrissimum × Rosella), bearing two fine purple flowers mottled with white.

A. J. Hollington, Esq., Forty Hill, Enfield, sent Cattleya Gaskelliana delicata, C. Muriel Hallington (Murillo × O'Brieniana alba), lilac-purple with white veining on the lip, and C. Princess Royal (Fabia × Hardyena alba), a fine white with richly coloured lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood), sent Læliocattleya Cambria Rosslyn var. (Lc. Barbarossa × C. Hardyana), a richly-coloured hybrid.

Pantia Ralli, Esq., Ashstead Park (gr. Mr. Farnes), sent a very handsome Cattleya Hardyana alba.

Messrs. J. & A. McBean, Cooksbridge, sent Odontoglossum crispum Challenger, an exceptionally fine white, with purple markings on the lip.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on June 10th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. Coningsby, D. A. Cowan, J. Howes, Dr. R. N. Hartley, A. Keeling, D. McLeod, E. Tack, J. Thrower, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum Corona magnificum (Doris magnificum × ardentissimum), a very fine variety, heavily blotched with chocolate brown; O. crispum var. She, a grand crispum of the Pacho type, carrying a spike of nine large flowers; and O. crispum xanthotes Bestyellow, probably the finest and most heavily spotted variety of xanthotes; from P. Smith, Esq.

Læliocattleya J. F. Birkbeck var. Leviathan, a large flower of perfect shape, from S. Gratrix, Esq.

AWARDS OF MERIT.

Dendrobium crystallinum album; Odontoglossum Leeanum var. Dusky Maid; O. crispum var. Courage; and Læliocattleya Teucra gloriosa (Lc. Martinetii × C. Mossiæ), from S. Gratrix, Esq.

Odontoglossum Jasper var. Sunbeam; O. majesticum var. giganteum, and Odontioda Bridesmaid var. Dora, from P. Smith, Esq.

AWARDS OF APPRECIATION.

Odontoglossum crispum var. Spion Kop (1st class), from P. Smith, Esq.

Cypripedium Gowerianum Gratrixianum (Lawrenceanum Hyeanum × Curtisii Sanderæ), from S. Gratrix, Esq.

CULTURAL CERTIFICATES.

To Mr. J. Howes, for Læliocattleya Birkbeck var. Leviathan, and Cattleya intertexta var. Purity.

To Mr. E. W. Thompson, for Odontoglossum Jasper var. Sunbeam.

BOTANICAL CERTIFICATE.

Ornithocephalus grandiflorus; from P. Smith, Esq.

A Large Silver Medal was awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for a fine representative group of well-grown Orchids, Cypripediums being particularly well represented.

A Silver Medal was awarded to P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson), for a choice group of Odontiodas and Odontoglossums, among the latter being a splendid example of O. President Poincaré, which received a Gold Medal.

A few interesting exhibits were also staged by Mrs. Gratrix, Whalley Range, and Messrs. Sanders, St. Albans.

At the meeting held on Thursday, June 24th, 1920, the members of Committee present were:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, A. Hanmer, J. Howes, A. Keeling, D. McLeod, Dr. F. T. Paul, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATE.

Cypripedium Greyi Haddon House var. (Godefroyæ × niveum), quite the best of the type seen in the North, from P. Smith, Esq.

AWARDS OF MERIT.

Miltonia Bleuana Pitt's var., from Mrs. Bruce and Miss Wrigley.

Odontioda dilectissima (Odm. tripudians × Oda. Vuylstekeæ), from P. Smith, Esq.

Odontoglossum crispum var. Viking, from S. Gratrix, Esq.

Odontioda Alcantara rotunda (Oda. Cooksoniæ × Odm. eximium), from Messrs. Keeling & Sons.

AWARDS OF APPRECIATION.

Lealiocattleya Shogun var. rubra (L. tenebrosa × Lc. Martinetii) (1st class), from Capt. W. Horridge.

Odontioda Laura (Brewii × Coronation) (1st class), from Messrs. J. Cowan & Co.

CULTURAL CERTIFICATES.

To Mr. A. Burns, for Dendrobium Victoria-Regina.

To Mr. W. E. Thompson, for Odontioda dilectissima.

A Silver Medal was awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), for a fine group, in which Odontoglossum was represented by a number of beautiful varieties.

Interesting exhibits were staged by Capt. W. Horridge, Bury (gr. Mr. A. Coningsby); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes); Messrs. A. J. Keeling & Sons, Bradford; and Messrs. J. Cowan & Co., Gateacre.

At the meeting held on Thursday, July 15th, 1920, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, Dr. R. N. Hartley, J. Howes, A. Keeling, J. McNab, D. McLeod, W. Shackleton, E. W. Thompson, J. Thrower, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATE.

Cattleya Mendelii var. Lady Moore, a large, well formed flower, with pure white sepals and petals, from S. Gratrix, Esq.

AWARDS OF MERIT.

Odontioda Wansfell (Odm. hybrid × Oda. Charlesworthii), from Mrs. Bruce and Miss Wrigley.

Odontoglossum cœruleum West Point var., from S. Gratrix, Esq.

Odontioda Brewii var. Yellowtips, from P. Smith, Esq.

CULTURAL CERTIFICATE.

To Mr. E. W. Thompson, for Odontioda Brewii var. Yellowtips.

This was rather a small meeting, but a number of interesting exhibits were staged by Mrs. Bruce and Miss. Wrigley, Bury (gr. Mr. A. Burns), S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), and P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson), the awards being as above.

N.B.—The hybrid Dendrobium (primulinum × Pierardii) exhibited by Capt. Horridge on April 15th, as D. venustum (see p. 92), has been renamed D. Primulardii, there being already a Siamese species named D. venustum.

At the meeting held on Thursday July 29th, 1920, the members of Committee present were: R. Ashworth, Esq. (in the chair), Messrs. A. Coningsby, D. A. Cowan, J. C. Cowan, J. Evans, Dr. R. N. Hartley, J. Howes, A. Keeling, D. McLeod, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cattleya Snowdrop var. Hermione (O'Brieniana alba × intertexta alba), a pure white flower of good form, and Brassocattleya West Point, a beautiful flower of fine shape and substance, with creamy yellow sepals, white petals flushed with rose, and a large rose coloured lip with fine yellow throat; from S. Gratrix, Esq.

Cypripedium General Petain, a large and well-formed white-ground flower, beautifully lined and spotted with claret-coloured spots, one of the finest of the Psyche section yet seen; from Mrs. Slingsby.

Oncidium macranthum var. nanum, a fine thing, with sepals brownish yellow, petals bright yellow, and side lobes of lip bluish purple; from P. Smith, Esq.

AWARDS OF MERIT.

Cattleya Hesta alba (Suzanne Hye × Warscewiczii F. M. Beyrodt), and C. Albania (O'Brieniana alba × Harrisoniana alba), from Mrs. Gratrix.

Cattleya Hesta magnifica, from S. Gratrix, Esq.

CULTURAL CERTIFICATE.

To Mr. J. Howes, for Odontioda Brewii var. Cardinal.

A Silver Medalwas awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for a fine group of Cattleyas, Cypripediums, and a few others.

Interesting exhibits were staged by Mrs. Gratrix, Whalley Range (gr. Mr. J. Howes); Mrs. Slingsby, Beverley, East Yorks: Captain W. Horridge, Bury (gr. Mr. A. Coningsby); and P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson).

ORCHIDS FROM USK PRIORY.—Two fine inflorescences are sent by R. Windsor Rickards, Esq., Usk Priory, Monmouthshire. Cattleya Adula is a noble spike of seven large and well-developed flowers, with copper-red sepals and petals, and a bright purple lip. The peduncle is over seven inches long and very stout, and was evidently cut from a very strong plant. Læliocattleya Soulange is a strong spike of four magnificant flowers, with bright mauve-purple sepals and petals, and a broad, rich purple lip, with much yellow in the throat. The parents of this fine hybrid are Lc. Lustre

and C. Dowiana aurea, the former derived from C. Lueddemanniana and Lc. callistoglossa (Lælia purpurata × C. Warscewiczii), and with such a distinguished ancestry one can understand the quality of the plant under notice, which is among the most brilliant of late summer flowering hybrids. Both the spikes sent are excellent examples of good culture. Mr. Rickards in a letter comments upon the early-flowering of some of the Cattleya hybrids this season.

CALENDAR OF OPERATIONS FOR SEPT.-OCT.

By J. T. BARKER, Orchid grower to His Grace the Duke of Marlborough, Blenheim Palace, Woodstock, Oxon.

BEFORE these lines appear in print the majority of Orchids will have completed their season's growth, and the object now should be to consolidate and mature that growth as much as possible, so that the plants may be capable of passing through the winter months satisfactorily. This is best accomplished by admitting the maximum amount of sunlight and air, so that they neither suffer by scorching nor by draughts. September and October may be very variable months, and often after seasons like the present, when sunshine has been very rare, we may get the best part of the year at this time. But whatever the outside conditions, the plants should be gradually inured to the sunlight, and fresh air should be admitted whenever possible. Everything depends upon a proper balance being maintained in the different departments. Vary the conditions as required, and there will be no question of the plants not thriving.

ATMOSPHERIC CONDITIONS.—The atmospheric conditions of the different houses should be carefully watched at this season of the year, when nights are often cold, and evaporation very slow; an over-humid atmosphere may very easily be made which, if allowed to last very long, may do much harm. The other extreme should also be strictly guarded against. Syringing and spraying must now be done with discretion, taking care that the plants get dry before night, as much harm is often caused by plants being exposed to a low temperature when their surroundings are wet and cold.

VENTILATION.—Fresh air being life to all plants, it is essential, under the artificial conditions of our glass houses, that every opportunity should be taken of admitting it on favourable occasions, according to the nature of the plants grown. Each plant has an individuality of its own, and it is necessary to study its requirements during the various seasons of the year. What would be correct during active growth would be quite wrong during the resting season, hence the necessity of close observation at all times.

WATERING.—In a season like the present, when sunshine has been reduced to a minimum, plants take up much less water than during brilliant

weather, and evaporation being less rapid, it is obvious that less moisture must be given, both directly to the plants and in the atmosphere. The compost has also much to do with the watering of the different plants, and the way it is placed in the receptacles, whether firmly or loosely, will make some difference. Plants of the same variety may vary to some extent in the amount of water they take up; especially is this observable in any batch of home-raised hybrids. There is often as much difference in this respect as in their growth and character. Orchids cannot be successfully cultivated by rule of thumb methods, hence the difficulty of writing a Calendar that is applicable to every case. Intelligent observation of such small but important matters as cleanliness, keeping proper temperatures, etc., will enable the cultivator to decide for himself what his plants' requirements are. Orchids, like animals, must be made comfortable, each according to its individual requirements, if they are to thrive.

SHADING should now be dispensed with wherever possible, the plants being gradually inured to the light. Sudden exposure to strong sunlight after a season like the present may result in scorching, which not only disfigures the plant, but may result in further injury.

WINTER QUARTERS.—At this season a commencement must be made to place all those plants which require an even temperature the whole year round in their winter quarters, this giving the opportunity of examining each plant, and cleaning and repotting any that require it. Periodical examination of the plants is of the greatest importance, especially where large numbers and numerous varieties are grown.

CATTLEYAS, Læliocattleyas and their allies will from now onwards give a good account of themselves, for so many produce their flowers at this season that it is impossible to enumerate them in detail. With the many beautiful hybrids which have been raised of recent years it is possible, given sufficient room and number of plants, to maintain a continuous show of their gorgeous flowers. It is somewhat different to what our predecessors had to contend with when only the species were available. Any that are in need of new rooting material may be repotted whenever they are about to produce new roots from the base of the pseudobulbs, which will occur soon after the flowers have faded. This family invariably produces new roots twice a year, but the best time to repot them is soon after they have finished flowering. Young seedlings and small growing plants should never be allowed to suffer for want of new material. The newly-potted plants must be kept on the dry side until the roots have freely entered the new compost, but shrivelling must be avoided by keeping their surroundings moist, the plants having an occasional watering when necessary, and then being allowed to become dry again before repeating the application.

LÆLIA ANCEPS and its varieties will now be fast pushing up flower

spikes, and when they attain sufficient length should be neatly staked to prevent them from injury.

CYPRIPEDIUMS of the winter-flowering section are now rapidly pushing up their flowers, in fact some of the earliest varieties are already in bloom. The scapes should be neatly staked as soon as they are long enough, as it is very difficult to get them into position again if allowed to fall over the sides of the plant and the stalks to become twisted. When properly staked, the flowers can be seen to the best advantage, and the stalks being straight, the flowers may be used in a cut state for any class of indoor decoration. Plants of the summer-flowering section, of which there are several very desirable and beautiful varieties, may be repotted when they have passed out of bloom, should they require it. The usual compost advised from time to time for these plants should be used, and it is most desirable, if the best results are to be attained, to attend regularly to the repotting, using the best materials obtainable.

MILTONIAS.—Plants of Miltonia vexillaria and its hybrids that were not potted last month should be done whenever their growths have reached the desired condition. This section now includes some most desirable varieties, and as they produce their flowers through the greater part of the summer, from early in April to late in August, they are most useful where a continual show of flowers has to be maintained.

ODONOTGLOSSUMS.—Where these plants are grown in quantity, there will always be some in bloom. One of the greatest attractions of Orchid growing is in seeing seedlings or imported plants unfold their first flowers, and when anything of exceptional quality appears disappointments are soon forgotten, hence the continual interest once taken up in these most charming plants. Those that bloomed early in the year are now making their growths, and the roots from these new growths will soon be pushing in all directions; no time should be lost in affording new rooting material to those that require it. This applies particularly to the O. crispum and O. Pescatorei types and their innumerable hybrids, also the Odontiodas, which may be treated in precisely the same way as Odontoglossums. Although individual plants may be repotted at any season, there is a time for the operation generally, and the present season is undoubtedly the best for overhauling these plants, provided that the growths are in the desired state, for the general condition of the atmosphere is conductive to the plants quickly establishing themselves. Plants that are in a dormant condition should not be disturbed until their new growths are several inches high. These plants require a compost of a softer and finer nature than the Cattleya family, and a suitable compost is made up of equal portions of Ar and good peat fibre, with the addition of live sphagnum moss and broken leaves. The material should be cut up according to the size of the plants

to be potted, pressing the material into the receptacles moderately firmly, and water being applied with extreme care until the plants are well rooted. The pots and everything used should be throughly clean. The atmosphere must be kept moderately moist, and fresh air should be admitted on all favourable occasions, especially at night. The low temperatures once advocated did not give the best results, and an even temperature of 55° to 60° is preferable. On bright days a slight spraying will also be beneficial, and help to check attacks of thrip and other pests. During the winter months these plants should enjoy all the light possible.

MASDEVALLIAS of the M. Harryana section should receive attention at the present season, if the compost is in a decayed or decomposed condition. A similar compost to that used for Odontoglossums will answer their requirements.

DENDROBIUMS that have finished their growth should be thoroughly cleaned and placed in their winter quarters in the resting house. This is easily accomplished now that they have all completed their growths, and if the house and plants are throughly cleaned, they should not be much trouble until their flowering nodes begin to swell in the spring. Sufficient water shonld be given to prevent them from shrivelling, and a dry temperature of about 60° will be almost their only requirement.

ONCIDIUMS.—Some of the plants of Oncidium Kramerianum and O. Papilio, known as the Butterfly Orchids, are now in bloom, and will continue for a considerable period to produce fresh flowers from each stem. The flowering season should not be unduly prolonged, as the majority of Oncidiums will deteriorate, and possibly dwindle away entirely, if the flower spikes are allowed to remain on the plants too long. These interesting Orchids prefer a light position at all times, and the smaller plants should be suspended from the roof of the Cattleya house. They require a very small quantity of material in which to root. Whilst making their growth plenty of root moisture is necessary, but when at rest the compost should be kept on the dry side. Oncidiums comprise some of the most decorative Orchids in cultivation, and are adaptable to any form of decoration.

PHALÆNOPSIS and Allies.—With the shorter days this bulbless group of Orchids, which includes Vanda, Aërides, Saccolabium, Angræcum, and others, will need less water, both at the root and in the atmosphere. As soon as the tips of the roots are sealed over, the plants will only need water in sufficient quantities to prevent the leaves from showiug signs of distress. All should enjoy a light position during the dull days of winter. The species which produce their flower spikes early should have sufficient water to keep them plump and healthy. These plants need considerable attention during the winter months to keep them in the best condition.

ORCHID NOTES AND NEWS.

THE fortnightly meetings of the Royal Horticultural Society, at the Royal Horticultural Hall, Vincent Square, Westminster, as arranged for the current period, are September 7th and 21st, and October 5th and 19th, when the Orchid Committee will meet at 11.45 a.m. The meeting on October 5th is a special show of British grown fruit, when groups of plants may not be shown, but the Orchid Committee will meet upstairs at the usual hour to adjudicate upon plants submitted for Certificates. The dates of the November meetings are the 2nd, 16th and 30th.

The corresponding meetings of the Manchester and North of England Orchid Society, at the Coal Exchange, Manchester, are fixed for September 2nd and 16th, October 7th and 21st, and November 4th and 18th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

A remarkably handsome form of Oncidium Forbesii is sent from the collection of Philip Smith, Esq., Ashton-on-Mersey, by Mr. E. W. Thompson, who remarks that some natural hybrids have appeared in the same importation. The flower measures over 2½ inches in diameter across the petals, and the lip is copiously blotched with brown on a yellow ground. The petals are brown, with a few similar spots on the yellow margin, while the ample column wings are very closely barred with red-brown on a light-yellow ground. It is a plant to be taken care of.

We learn with much pleasure that the nursery of M. Theodore Pauwels, at Meirelbeke, which suffered so severely during the concluding days of the war, has been largely reconstructed, and is again in working order. Part of the houses, however, remain for completion next year. It will be remembered that details of the catastrophe, together with an illustration, were given in our last volume.

CYMBIDIUM ORIENS.—This is a very charming hybrid from the collection of G. Hamilton Smith, Esq., Northside, Leigh Woods, Bristol, which Mr. Walker states was obtained from C. erythrostylum × C. Doris (the latter from C. insigne × Tracyanum). The sepals and petals are blush pink, closely lined with bright pink, in this respect entirely recalling C. insigne, while the influence of C. erythrostylum is very marked in the lip and column. The lip is three-lobed, closely lined with red-brown on the side lobes, and with copious spots of similiar colour on the front lobe, while the column is rosy-red at the back. The three keels of the lip are yellow with a few red

spots. Mr. Walker remarks that the other seedlings were smaller and nearly white. The influence of C. Tracyanum is not apparent, and confirmation of the record seems desirable.

EPIDENDRUM LATERALE, Rolfe.—This curious little Epidendrum has again been introduced to cultivation, a plant having just flowered at Kew among a lot of plants collected in Costa Rica, and brought home by Mr. C. H. Lankester. We have known the species for about ten years, and when Messrs. Sander, in December, 1910, sent a specimen, obtained from the same country, we were much struck with the lateral inflorescence, and at first wondered whether the character could be normal. The flowering of a plant in the collection of the late J. J. Neale, Esq., at Penarth, settled this doubt, and we named the plant Epidendrum laterale. On its flowering again, in August, 1912, it was exhibited at a meeting of the Royal Horticultural Society, and was recorded as a curious little plant, bearing two spikes of green flowers from rudimentary growths, as in E. Stamfordianum (*O. R.*, 1912, p. 280). The character is evidently constant, for it is identical in Mr. Lankester's plant, which he imforms us occurs at Cachi, at about 3,500 ft. elevation, but is rare there. He has known it for seven or eight years. It bears tufts of cylindrical pseudobulbs, two to three inches long, with a single oblong leaf, some three inches long by about one broad. The slender spikes are about half as long as the pseudobulbs, and are borne on a small lateral growth, as in Cattleya Walkeriana, which afterwards develops into a pesudobulb. The spikes are protected by one or two short basal sheaths, and the flowers are light green, and over an inch across, the lip being uppermost, three-lobed, and its stalk completely confluent with the column. The lateral sepals are slightly concave, and broader than the odd one, while the petals are narrowly linear-lanceolate. It is a very distinct and interesting little plant.

R. A. ROLFE.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

J.S —Cattleya Rex is said to be a native of the Upper Amazon, on the eastern slopes of the Andes of Peru, but we do not know the conditions under which it grows. It has become extremely rare in gardens, and we fear has not a very stroug constitution.

E.W.T.—The occurrence of natural hybrids among the Brazilian Oncidiums of the Forbesii group shows that some of the species grow intermixed, but we find surprisingly little definite information upon the subject.

Amateur.—The Masdevallias of the Chimæra group should be moved to the Intermediate house for the winter, as they are very impatient of a low temperature.

J.T.—A light-coloured form of Miltonia Regnellii, a Brazilian species.

The Orchid Review

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OUR NOTE BOOK.

VISITORS to recent meetings of the Royal Horticultural Society must have been impressed, not only with the quality of the exhibits and the steady progress that is being made in hybridisation, but also with the general display. The awards made at the September and October meetings (at one of which groups were not admitted) include no fewer than six First-class Certificates, seventeen Awards of Merit, and fifteen Medals, and it must be admitted that the standard of merit set up is a severe one, and new varieties have to stand the test of comparison with those previously certificated, a painting being kept in all cases. Even with the severest compression our report extends to over seven pages. At the meeting held on November 2nd, there were two magnificent Gold Medal groups, the report of which will probably be cut down by exigencies of space to a few lines. It all affords welcome evidence of progress, and is an earnest of what may be expected when normal conditions return. In spite of the long set-back of the war, autumn-blooming Orchids are better and more numerous than ever, and we hope that the Society will see its way to hold a special exhibition next November, on the lines of that held in 1912. Many of our readers will be able to recall the magnificence of a display which still stands unique, and of which our report occupied eight pages (vol. xx. pp. 366-374). We believe that only the opportunity is needed to repeat the success.

A noteworthy character about the Orchids which now succeed in gaining awards is that nearly all are hybrids, and the great majority of secondary origin, that is to say the parents are themselves hybrids, and have only been selected for further experiment because possessing qualities which it is desirable to perpetuate or improve. The work is being continued on thoroughly progressive lines, accompanied by rigid selection of parents, and a distinguished horticulturist has just remarked to us that it is the history of the Fuchsia and the Florist's Pelargonium over again. He is right, but we hope that everything will not be reduced to a rigid circle. The charm of the Orchid flower is its uncoventionality. Even the unity of detail conferred

by the common possession of a column and lip is broken up by an infinity of detail which is at times bewildering, and a quaintness of shape and colouring that have contributed largely to the popularity of the family. Such qualities as these must be respected by our hybridists, when they take them in hand.

Hybridisation has become the leading feature of modern Orchid culture, but it would be deplorable if it were permitted to banish a host of delightful little wildings from our collections. Happily, there is room for both, and we believe that a return to normal conditions will give the necessary opportunity for the re-introduction of some that have been lost during the last few disastrous years. And the world is not yet exhausted of her novelities, as we have the best of reasons for saying. Hybridisation is fascinating work, and its results are far too obvious to be ignored, but in the matter of surprises we doubt whether it has ever quite equalled the experiences of the palmy days of Orchid importation.

There is another phase of the question that must not be overlooked, and which is brought out by such an article as that on the Orchids of Costa Rica at pp. 129-132. Mr. Lankester reminds us, in picturesque language, how much yet remains to be done before the Orchid flora of one small spot on the earth's surface is known, and it has brought an offer which shall be supported by every means within our power. Some of the scenes described may not be available for ever. The inexorable march of civilisation, the ravages of coffee and rubber planting, and other circumstances beyond our control, threaten some of these fair scenes with destruction and their inhabitants with extinction. The very least that we can do is to secure materials for permanent preservation in such a national establishment as that at Kew, while yet there is time, and to make them available, if possible, by means of a descriptive and at least partially-illustrated monograph.

This ought now to be possible. One of the earliest friends of the *Orchid Review*, who has "spent many happy hours in its company and among his favourite plants," offers a donation of £50 towards the cost of such a work, on condition that twenty others do the same, or that an equivalent sum be raised. After a few suggested modifications, the proposal is as follows:—(1), That the fund raised be used to defray the cost of preparing and printing such a work, the proceeds of sales being subsequently available for the same purpose, and that it be invested in the name of three Trustees. (2), That the work be arranged synoptically, with a view to show the stages of progressive development, and that it contain original references, synonymy, a few important figures, and the habitat of the species. (3),

That the Director of the Royal Botanic Gardens, Kew, the Chairman of the R.H.S. Orchid Committee, and the Editor of the *Orchid Review*, be invited in the first place to act as Trustees, the latter also acting as Secretary and Editor. And (4), That any materials contributed for the work *otherwise than by loan* be deposited in the National Herbarium at Kew for permanent preservation.

The view of the donor (who wishes to remain anonymous) is to remove as far as possible the injustice caused by the arbitrary closing of the Reichenbachian Herbarium, and to establish a fund for the purpose of securing a scientific revision of the family. In view of the magnitude and difficulty of the task, he wishes to set up the simplest possible organisation, and he desires that the descriptions shall be as concise as possible, and that the work be not overburdened with references. He also suggests that under the circumstances Kew might be disposed to afford the necessary facilities, and he urges that the work be commenced at the earliest possible moment. In the event of the work being found impracticable, he desires that his donation be devoted to the cost of illustrating the *Orchid Review*, in recognition of the gallant effort made to remedy Reichenbach's outrageous act.

We desire to support the larger work, and we commend it to the hearty support of our readers.

OBITUARY.

A. J. KEELING.—It is with much regret that we hear of the death, on September 13th last, of Mr. A. J. Keeling, The Grange Nurseries, Westgate Hill, Bradford, at the comparatively early age of 62 years. Mr. Keeling has been associated with Orchids from his boyhood, and was for many years Orchid grower to the late D. O. Drewett, Esq., of Riding Mill-on-Tyne, a keen amateur and raiser of Cypripediums, whose work has already been recorded (*See O.R.*, xviii, p. 104). It was during this period that Cypripedium Juno (callosum × Fairrieanum) was raised, a plant which gained a First-class Certificate from the R.H.S., in February, 1892. Six years previously C. apiculatum (barbatum × Boxallii) had bloomed in the collection, and this we believe was Mr. Keeling's first hybrid. Soon after the late Mr. J. Charlesworth took up the work of hybridising, Mr. Keeling went to Heaton to assist in the work. A few years later Mr. Keeling started in business for himself, and since 1903, when Mr. Keeling's three sons were admitted, the business has been conducted under the name of A. J. Keeling & Sons. The work of hybridising has since been continued, and a great many seedlings have been disposed of, both in flower and in an unflowered

condition. One successful hybrid that we recall is Cypripedium bingleyense, derived from C. Charlesworthii and C. Harrisianum, which bloomed in 1899. Mr. Keeling has been for many years a member of the Committee of the Manchester Orchid Society, and a very regular exhibitor at its meetings. His name is commemorated in Cypripedium Keelingii, a hybrid between C. Chamberlainianum and C. Parishii, which flowered in 1903. Mr. Arthur Keeling, who has had principal charge of the business for some years, will continue the management.

Cecil H. Spencer Perceval.—Some of our readers may remember an account of a remarkable British hybrid Orchid, of which an account was given at page 34 of our first volume, under the name of Habenari-orchis viridi-maculata. It had been discovered, in July, 1891, by Mr. C. H. S. Perceval, of Longwitton Hall, Morpeth, Northumberland, and we have just heard, with deep regret, that this gentleman passed away in May last, after a short illness. Mr. Perceval was a great lover of native Orchids, and when he observed on his estate one unknown to him he carefully transferred the plant to his wild garden, sending the spike to Kew, with a careful note of the circumstances under which it was discovered. It was immediately recognised as a natural hybrid, of which no previous account could be found. Ten years later the same hybrid was found in Bohemia, and in July, 1919, it also appeared in Ireland, in each case being associated with the two parents. It is now known as Orchicœloglossum mixtum, and its history will be found at p. 144 of our last volume. There is another point of interest about the original plant, for not only was it made known to science by Mr. Perceval, but it was taken such good care of that it has increased. Last year five tubers were sent to Kew, two of which then flowered, and all five this year. And now Mrs. Perceval, in sending the writer a tuber, remarks that there are about a dozen plants. It would be interesting to know if capsules are produced, and if so whether the seeds will germinate. This plant will form an imperishable memorial to Mr. Perceval.

Orchis prætermissa, Druce.—Some six years ago this supposedly new British Orchis was described, the name denoting that it had hitherto been overlooked. In a long criticism on our paper, "The British Marsh Orchises" (*Rep. Bot. Exch. Club*, 1919, pp. 608-612), Mr. Druce now speaks of "the many thousands of plants which I have seen growing in the marshes of nearly every British county." Another long paper is devoted to "Orchis prætermissa, L." (pp. 576-578). But has not our astute friend inadvertently dropped upon another fact? That the plant was known to Linnæus we have never doubted, but we question whether he called it "prætermissa." The fact is O. latifolia, L., is an aggregate, as we long ago pointed out, being based upon several earlier records, which do not all

relate to the same thing. In disentangling the confusion we applied the term latifolia in its original sense. Mr. Druce, in alluding to our analysis, remarks: "An extraordinary fallacy underlies these statements. The latifolia of Linnæus (if a species at all) in a restricted sense must be based upon its description not on its synonyms." But let us remind him that description fails when drawn from two or three different plants. Whenever an applied name is found to refer to more than one species, and amendment becomes necessary, the only permissible course is to apply the old name in its original sense. A confusion being admitted, the problem is to disentangle it, and the difficulty in the case of a Linnean name is that there is no earlier binomial system. One may trace the plant in dispute back to Gerarde (1597), and find the spotted and unspotted species figured side by side, with three British localities, and Mr. Druce asks, "Is the figure cited that of a British plant?" Does it really matter? Whatever O. latifolia may be, no one supposes it to be exclusively British. He says "Gerarde not only borrowed the figure, but the description." As to the description, we entirely dissent. Gerarde described both species in his own quaint language, clearly from living specimens, and remarked, "I have found them in several places." Mr. Druce cites "Act. Holm. 15, 1744," to show that O. latifolia has spotted leaves, but Linnæus neither cites that, nor yet states what the leaves are like. On turning up the references given by Linnæus, we find forms with both spotted and unspotted leaves, the latter being the O. latifolia of numerous early British authors and the O. prætermissa, Druce, a species known as British for upwards of 300 years, though much camouflaged by hybridity with O. maculata. L. (O. Fuchsii, Druce), where the two grow intermixed. The confusion under O. latifolia has long been known. As long ago as 1827 the elder Reichenbach separated the Continental form with spotted leaves, under the name of O. majalis, from the green-leaved O. latifolia. The relationship of these forms to each other requires further investigation, in which Mr. Druce's friendly co-operation is invited. As to his final remarks, let us assure him that our interest is not limited to tropical Orchids, and to epiphytes at that. R.A.R.

Miltonioda Cooperi.—A greatly inproved form of this interesting generic hybrid has been sent by Messrs. Sanders, St. Albans. The parents are Cochlioda Nœtzliana and Miltonia Warscewiczii, and the flower sent has an expanse of two inches, and most resembles the former parent in shape and colour. The sepals and petals are rosy scarlet, and the broad lip rosy buff, somewhat brighter in the centre, and with yellow keels. The front of the column is deep yellow, and the apex and wings lilac. The original, described on page 232 of our twenty-first volume, had a shining patch on the lip.

FERTILISATION OF OPHRYS.

A VERY interesting discovery respecting the fertilisation of Ophrys has been made by M. Pouzanne, President of the Court of Justice at Sidi Bel Abbas, Algeria, who for more than twenty years has studied the genus with respect to the fertilisation of the flowers. The result of M. Pouzanne's observations are given in a rather long paper, in collaboration with M. Henri Correvon (*Journ. Soc. Nat. Hort.*, 1916, pp. 29-31, 41-47), of which the following is a summary.

Darwin admitted that he could not understand the fertilisation of Ophrys, for the flowers offered no inducement to insects to visit them, yet by their very structure they were clearly intended for insect fertilisation. In alluding to the well known fact that the flowers of Ophrys bear a rude resemblance to bees, flies, &c., it is interesting to seek the reason of this strange mimicry. But observation of the insect visitors is difficult, and requires much patience and perseverance. In the case of the species under review, the fertilising insects appear to be the males of certain small burrowing hymenoptera, which emerge some time (one to four weeks) before the females, and fly here and there awaiting their appearance. It is during this interval that, in calm sunny weather, fertilisation chiefly takes place, and the period may be shortened by exceptional circumstances which hasten or retard the appearance of either the flower or the insect. Lastly, it is necessary that the insect colonies be sufficiently near the places where the plants grow, for the males will not forsake the ground where the females are still dormant. As these conditions must be in agreement before fertilisation takes place, it is not surprising that less than a fourth of the flowers may produce capsules, and that observations are difficult. In practice, it is little use attempting observation unless many plants are flowering together; it is only waste of time observing isolated specimens.

If one is blessed with good eyesight, it is possible to distingiush among the small insects which fly near the Ophrys those which are bearers of pollinia, and with a little practice it is possible to recognise the fertilisers in flight. From present observations it would appear that the species of Ophrys may fall into two categories, those that have a fairly deep cavity at the base of the lip (O. fusca and O. lutea), and those without a cavity (O. speculum), these being the only three species in which the fertilisation has been personally observed.

O. speculum has been observed in several Algerian localities, and for a period of twenty years. It is fertilised by the male of the hymenopterous insect, Colpa aurea, much like a slender bee, and having its elongated body

covered with fairly long, red hairs. The larvæ live underground, in the dry slopes exposed to the sun. In the month of March, in the middle of warm sunny days, one frequently sees the males of this insect making their sinuous flight, and exploring the ramparts and fortifications of the towns of Algeria, and railway embankments which are favoured by O. speculum. They flutter about the slopes where the female will appear somewhat later. The flowers of O. speculum offer them some distraction during their long wait. If you seat yourself on one of these sunny slopes, with a small bunch of O. speculum blooms in your hand, you will soon percieve that the insects are in some way conscious of the presence of the flowers. They fly round, and soon one, two, three or even more will alight on the Ophrys; sometimes two or three will jostle on the same flower, until one remains in position upon the lip. This will occur under the eyes of the observer, and on flowers held in the hand. The flowers of O. speculum, to the exclusion of other species of Ophrys, excercise a mysterious attraction to the males of Colpa aurea, for if you place in close proximity the flowers of other species of Ophrys they pay not the least attention to them.

Careful observation of the insects (of which details are given) has shown that the flowers are not visited in search of nectar (as they have been seen to do in the case of other flowers). The attraction is due to the fact that the Ophrys lip, with its hairs, vaguely resembles the female of Colpa aurea. The object is quite obvious, and when the insect's head touches the gland of the pollinia, the latter become attached between the eyes, and when the bee flies away it carries this bizarre coiffure in the form of two little horns. Insects have been observed with as many as six attached pollinia. The process is completed when the insect visits another flower, because the pollen then adheres to the viscid stigma.

Whether the insect is attracted by sight alone or by some other sense is uncertain. Scent, as we know it, is not perceptable in the flower. An experiment was made to test this question. The hairs of the lip were completely removed from a number of flowers, so as to leave only the central blue blotch. When these were placed on a slope frequented by the Colpa, the flowers were visited in the usual way. A single flower was also inverted on the slope, so that the lip was underneath and invisible, but still the Colpa settled on it as if in its normal position. The visits of the Colpa have also been observed where the Ophrys grows freely in the open fields.

The flowers of Ophrys lutea are fertilised by a much smaller hymenopteron, slightly smaller than a bee; less hairy than Colpa aurea and of a sombre red. Fertilisation of the flower has been observed as they grow in the fields, and several of the insects were captured, and identified at the Paris Museum, but the name has been mislaid. This insect alights on the lip of the flower, in the reversed direction, with its head outwards, and the

slender abdomen in the cavity under the pollinia, and when the insect flies away, the pollinia are carried off on its upper surface, near the end. Insects have been observed with as many as six pollinia attached. On visiting another flower, pollen is deposited on the stigma, and fertilisation is effected. It is interesting to note that O. lutea has a very strong lemon scent.

In the case of Ophrys fusca still fewer observations have been made, but the insect visitor is a small black hymenopteron, in shape much like the one previously mentioned, and which also alights on the lip in the reverse direction. On the railway embankment at Blida, one of these insects was seen to alight on the lip of O. fusca, plunge its abdomen into the cavity, and fly off with the pollinia attached. It was not possible to determine the insect. At the end of January a small black hymenopteron had been observed flying round a clump of O. fusca carrying a bouquet of four or six pollinia, which must have been those of O. fusca, which was the only one in bloom at this early season.

It is estimated that about 20 per cent. of the flowers of O. fusca bear capsules, of O. lutea about 25 per cent., and of O. speculum 25 to 30 per cent. Figures of a flower of each species and of two of the insects are given.

There remain four other interesting Algerian Ophryses to be observed, the fine O. tenthredinifera, O. Scolopax, the remarkable O. bombyliflora, and the alpine O. atlantica. O. apifera is self-fertilising, as it is at home.

In connection with the preceding, our old correspondent, M. Fernand Denis, Balaruc-les-Bains, whose successes in hybridising Ophryses will be remembered, sends us the following note: "Similar phenomena may be observed with our native Ophryses. Near my Office I have two colonies of Ophrys aranifera, which interest me much, because four years ago I fertilised some flowers with pollen of O. speculum, and this year I have a number of O. Machiatii, the natural hybrid between the two, in bloom. I have seen the male of a hymenopteron (Megachile) visiting the flowers of O. aranifera one after another. I followed the insect for over twenty minutes, then caught it between my fingers for certain identification, and afterwards let it fly away."

The preceding information marks a great advance in our knowledge, for when Herman Muller published the second edition of his work, in 1877, he merely alludes to seeing a fly (Sarcophaga sp.) seated on the lip of O. muscifera and licking up the drops of fluid; it flew away, however, without removing the pollinia. It also invests the record of the Rev. Gerarde E. Smith, in 1829, with a new significance. He remarks, "Mr. Price has frequently witnessed attacks made upon the Bee Orchis by a bee, similar to those of the troublesome Apis muscorum." And Darwin commented, "What this sentence means I cannot imagine." We hope that now other observers will follow up the subject.

R.A.R.

BRASSOCATTLEYA HYEÆ.

THE hybrids between Brassavola Digbyana and the diphyllous Cattleyas are not a numerous group, and the one here figured, of which the second parent is recorded as C. Harrisoniana, is a very charming little plant and some good forms of it have recently been exhibited. It was originally raised in the collection of the late M. Jules Hye de Crom, Ghent, and

Fig. 14. BRASSOCATTLEYA HYEÆ.

flowered for the first time in 1906. The flower here figured is from a plant which was exhibited at the Holland House Show in the same year, by Lt.-Col. Sir George L. Holford, Westonbirt, and which gained an Award of Merit. The flower is of compact shape and of excellent substance, while the colour is rosy lilac, with a yellow disc to the lip. The fringe of the lip of the Brassavola parent, it will be noticed, is greatly reduced, but the front lobe is strongly undulate. It is a plant of good constitution, and very floriferous, and has been again used as a parent, this time with the large-flowered

C. labiata group. It is probable that further crossing with some of the richly-coloured Brassocattleyas would yield good results, increasing both the colour and the fringe of the lip, while retaining some of the distinct qualities of the diphyllous Cattleyas.

VANDA CŒRULEA VAR. CHARLESWORTHII.

(See Frontispicce).

THE frontispiece to the present volume is a beautiful albino of Vanda cœrulea which, under the name of V. cœrulea Charlesworthii, gained a First-class Certificate from the R.H.S., in October, 1908, when exhibited by Messrs. Charlesworth & Co , Haywards Heath. The flowers are shown slightly under natural size, and two of them are omitted through exigencies of space. The colour is pure white, with a small yellow stain at the base of the lip. It is a chaste and beautiful variety, and one of the few albinos of the species that have appeared.

Vanda cœrulea is one of the most beautiful of autumn-blooming Orchids, though not among the easiest to grow unless the conditions be just right. Mr. E. H. Woodall, of Scarborough, was a very successful grower of the species, as may be seen by an illustration which appeared at page 337 of our third volume, and it may be interesting to reproduce his note as to the cultural methods adopted.

"The plant of Vanda cœrulea shown in the plate," he remarked, "is interesting as well as beautiful, because the plant from which it was cut endured for nearly three years the most varying treatment while trying to find out what suited it best. It speaks volumes for the hardiness and vigour of this species to be able to say that after enduring the heat and moisture of a warm stove for a year-and-a-half, it has now recovered so thoroughly as to be able to produce a spike of bloom to which a First-class Certificate was granted last August. The secret—if there be one—of success with this lovely flower is *air*; abundance of it whenever possible, with sufficient moisture in the atmosphere to counteract the excessive drying caused by ventilation. Warm vinery treatment from mid-March to mid-October, a winter near the glass in the Cattleya house, and in the end of January or in early February, a dry cold rest in the house where Primulas and such-like plants are happy, will ensure success in my pure air. I much suspect this is an Orchid that especially dislikes the smallest taint of smoke in the air."

This treatment is on correct lines, for in its native habitat there is a rather wide range between the summer and winter temperatures. It grows at some 3,000 to 4,000 feet elevation, on trees that are fully exposed to the sun, rain and wind, the foliage giving a certain amount of protection.

CALENDAR OF OPERATIONS FOR NOV.-DEC.

By J. T. Barker, Orchid grower to His Grace the Duke of Marlborough, Blenheim Palace, Woodstock, Oxon.

THE two months now under consideration are usually the most dreary of the whole year, the days being short, with little light, and in many cases the outside conditions are best described as miserable, especially in districts where fogs prevail. The only thing that can be done in mitigation is to keep the roof glass as clean as possible, and to maintain a proper balance of heat and moisture, admitting fresh air whenever possible.

Temperatures.—The temperatures of all the divisions will reach their lowest point during the present months, and should be kept, with slight variations, at the following figures :—

East Indian house, 60° to 70°.

Cattleya house, 55° to 60°.

Mexican and Intermediate house, 55° to 60°.

Cool house, 45° to 55°.

The lower figures indicate the night temperatures, which should be the minimum, whilst the higher figures should be taken as the day temperatures. For some considerable time, the grower will have to rely on the heating apparatus for all the heat necessary to maintain the temperatures, and here may be mentioned one or two errors that are often made as regards the winter temperatures of Orchid houses. An excessive amount of fire heat is most detrimental to the plants, as it not only undermines their constitutions, but also dries up the compost, which entails unneccessary labour in watering to keep the plants from shrivelling. No harm will accrue should the temperatures in any of the divisions fall slightly below the figures given provided that at such time a dry atmosphere is maintained.

Atmospheric Moisture requires special care at this season. A cold, damp atmosphere, like a hot dry one, must be strictly guarded against during the winter months, as either condition brings trouble. Everything depends upon the conditions we make for the plants, for even the most difficult subjects will thrive if placed in suitable quarters. The amount of atmospheric moisture required depends partly upon the amount of artificial heat given, and partly upon the condition of the plants. The outside conditions, and the amount of ventilation possible, have also to be taken into consideration. Many of the evils which Orchid growers are troubled with are attributable to a faulty atmosphere in the houses. Excessive moisture is likely to bring the much-dreaded spot disease, while thrip and other insect pests are encouraged by the reverse conditions.

Watering.—As regards the application of water to the compost, I must

again urge the necessity of moderation, always being sure that water is required before applying it. The dangers of the compost being allowed to become too dry have been pointed out, but the effect of too much water is equally disastrous, entailing the loss of roots, and the general decline of the plants.

Ventilation.—In the matter of ventilation it is a golden rule, whenever possible, to have a little air on somewhere, in all the divisions, providing, of course, that the temperatures can be maintained. It sweetens the atmosphere, and does away with those "stuffy" conditions which are prevalent in many houses. If the conditions of the houses feel oppressive to the cultivator, depend upon it they are also oppressive to the plants. It is not so much in general principles that the great mistakes are made, but in these small details of our practice.

Resting.—Most Orchids, having reached maturity, delight in a season of rest, and those at rest at the present season should be allowed to remain quiet as long as possible. They should not be allowed to shrivel for want of water, nor on the other hand should their roots be decayed by an excess of it. There is as much skill in resting a plant properly, as in making it build up healthy growth in its growing season. The finer the growth, the more skill necessary to ripen and consolidate it, if the best results are to be obtained.

Cypripediums.—The winter-flowering section of these useful plants needs no words of recommendation from me, as their floriferousness, the ease with which they can be grown, and the lasting quality and beauty of their flowers are all well known, and at the present time are most popular. Another great consideration, especially to those who live in or near large towns, is that they suffer less from fog than almost any other Orchid. Cypripediums are always in active growth, hence absolute dryness at the roots, at any season, is injurious. During their flowering period, the minimum amount of moisture at the roots is required, but whenever the compost becomes dry, the plants should have water afforded them, care being taken that they become fairly dry between each application. A humid atmosphere should be maintained at all times, but care should be taken that it does not reach saturation point with a low tomperature. During their flowering period a night temperature of 60°, with a slight rise during the day will suffice.

Cattleyas, Læliocattleyas, and their allies are more appreciated at this season than at any other, and the number of fine autumn-blooming hybrids is steadily increasing, so that no difficulty is likely to be found in maintaining a display of their beautiful flowers. The remarks made regarding their culture during the winter months should be closely followed, as in my opinion these plants are generally given two much water during the winter,

and not sufficient during their growing season. Any that are in need of new material at the roots may still be taken in hand, but it is advisable that they should be pushing new roots when repotted, and that the new compost be afterwards kept on the dry side until the new roots have freely entered into it. Firm potting is necessary. These plants, although unable to stand direct sunshine, delight in abundance of light, hence the necessity of keeping the glass of the houses in which they are grown clean at this season. Sophrocattleyas, Brassocattleyas, and the many hybrids derived from intercrossing the allied genera, all succeed under the same conditions; therefore there is no need to mention them in detail.

Odontoglossums.—Plants of O. Uroskinneri, O. bictoniense, and others that are growing fast and pushing forth roots from the base of their growths, may be potted if necessary. These plants, having thick fleshy roots, should not be potted too firmly. O. grande, and those of a similar nature having completed their growths, and produced their flowers, should be gradually brought to rest, when only sufficient water to prevent shrivelling should be given them. This section of the genus requires a slightly warmer position than the O. crispum and O. Pescatorei section, and therefore should be grown at the warmest end of the house.

Oncidiums, such as O. varicosum, O. Forbesii and others, that have been growing in a cool temperature, and are pushing up their flower spikes, will be better for a little more warmth, which will assist them in developing their flowers, and thus a position in the Intermediate house is desirable. In a low temperature there is a danger of the buds turning yellow and dropping off, and I find that if placed in more favourable conditions the flowers are finer, and open readily.

Phalænopsis will now be showing their flower spikes. They give very little trouble where the structure is a suitable one. They should always occupy the warmest house, hence the reason that they are not seen as much now as in the past, when fuel troubles were not as prevalent as they are to-day. They are best grown suspended from the roof, at a sufficient distance from the glass to prevent the cold from injuring them. These, like many other Orchids, are best kept on the dry side during the cold days of winter.

Mexican Lælias.—These, like Cattleyas, enjoy light, especially whilst making their growths, and delight in fresh air whenever the outside conditions will allow of it being admitted. The early varieties will soon be opening their flowers; others are naturally later, and by judiciously manipulating them, the blooming period may be considerably extended. L. autumnalis and its chaste variety alba, with L. albida, and L. furfuracea, will also be in bloom. These like to be kept slightly cooler while making their growth, also the now scarce L. majalis, which does best when

suspended in a light position. When flowering is over, give the plants a good rest, allowing only sufficient water to keep the pseudobulbs plump Pot firmly, in small receptacles, in good rough osmunda or other fibre, as soon as young roots are about to push. These can be anticipated by observing small pimples on the rhizome, which is the best time to take them in hand. A temperature of about 53° to 60° F. by night, and a comparatively dry atmosphere, is suitable during the winter months.

Dendrobiums that are now at rest must have water afforded them with discretion for some considerable time, though shrivelling of the stems for want of moisture at the roots must be strictly guarded against. D. Phalænopsis and D. formosum are now in bloom, and at this dull season their flowers are most useful. When the blooms are over, or the scapes removed, the plants should be carefully rested in a temperature which does not fall below 60° F., and receive sufficient water to keep the pseudobulbs in a plump and healthy condition. The atmosphere should be kept fairly dry to assist in thoroughly ripening the pseudobulbs. Newly imported plants of these species, which I am pleased to see again amongst us, may be hung up in an intermediate temperature, and sprayed from time to time, until new roots are observed to be pushing, when they may be potted up into small pans, using a clean open compost, when they may be treated as established plants. D. infundibulum, D. Jamesianum, and others which require an even temperature the year round, will be much better removed to the Cool end of an Intermediate house for the winter, and these, being evergreen plants, must not be allowed to suffer for want of water at any time. Other evergreen Dendrobiums, such as D. thrysiflorum, densiflorum, pulchellum, and others which are resting should also have water afforded them whenever they become dry. Although not grown to the extent they were at one time, they are still a most interesting and fascinating class of plants, and deserve more extended cultivation.

General Remarks.—Perhaps at this season I may be allowed to mention a few thoughts which pass through my mind. Firstly, the extent of harm the war and its aftermath has done to horticulture, for how many plants have been lost through its indirect action, and how many collections broken up. It all shows that war, of whatever kind, is a curse to the peaceful cultivators of plants. It is vicious in its influence, and two years after the armistice we are still suffering under the abnormal conditions. Happily, the industry has been kept alive, and this is in no small degree due to the enormous strides which are being made in hybridisation, and which in time will no doubt lead to a still further development in the popularity of this beautiful family. In the meantime we should all unite to promote this desirable end. The present issue of the *Orchid Review* will complete another volume, and I am sure that every grower should be thankful to those who

have kept it alive during the troublesome times we have passed through. Its usefulness cannot be questioned, and we have only to look through the series of volumes to read the history of Orchid Cultivation from the time of its inception. Especially is this so in the enormous number of hybrids which have been recorded in its pages, and I am sure that all readers will join me in wishing our Editor many years of health and the necessary leisure to continue under more congenial conditions the good work which he has carried on for so long. May the cult grow beyond our greatest anticipations, and may the coming year bring us everlasting peace, and the promise of better times in the near future.

EPIDENDRUM ENDRESII.—I was much interested to see the note and figure of Epidendrum Endresii at page 145. The species is said to be fairly common in the region of La Palma, north of San José, at 5,000 to 6,000 elevation, and on the Cerro Zurquí, an adjacent range of mountains to the westward of La Palma, which is the depression between Irazú and the massif of Barba. I have not collected it here myself, but I believe the information is correct. The plants I have in cultivation in Costa Rica were given me in San José, and stated to have come from La Palma. I remember the late Prof. Paul Biolley bringing some from the Candelaria range, south of San José. I have never seen the purple form as described; my specimens have all a blue-violet stain. There is a very closely allied form on the southern slopes of Irazú, at 7,000 to 8,000 feet elevation, with the leaves closer together on the stems, the leaf sheaths more thickly verrucose, and the flower with a brown stain on the column and base of the lip. This I have found myself, and brought a plant home, but it unfortunately died.

C. H. LANKESTER.

ORCHIDS OF THE BAHAMAS.—In a work entitled "The Bahama Flora," Doctors Britton and Millspaugh enumerate 36 species of Orchids, belonging to 22 genera. The latter, however, are increased by breaking up the old genus Epidendrum into six. Sixteen of the genera are monotypic, and Encyclia heads the list with eight species. Of three species of Oncidium two are new. The flora of the Bahama Archipelago is most allied to that of the adjacent coasts of Cuba and Florida.

REICHENBACH ON HIMSELF.—"Systematic Botany becomes absolutely inaccessible if in our days it is regarded sufficient to scribble some lines about a thing, which may be applied to many or no species at once."—*Gard. Chron.*, 1880, i. p. 648. He might well have added: "And then lock up the materials for a quarter of a century."

ONCIDIUM PHALÆNOPSIS.

AMONG the Orchids which it is desirable to re-introduce to cultivation must be included this charming little Oncidium, for we fear that it has completely disappeared. It is a native of Ecuador, whence it was introduced by M. J. Linden, Brussels, through Gustav Wallis, being described by Reichenbach in 1869. It has since been reduced to a variety of O. cucullatum, though we should rather consider it as a distinct but closely

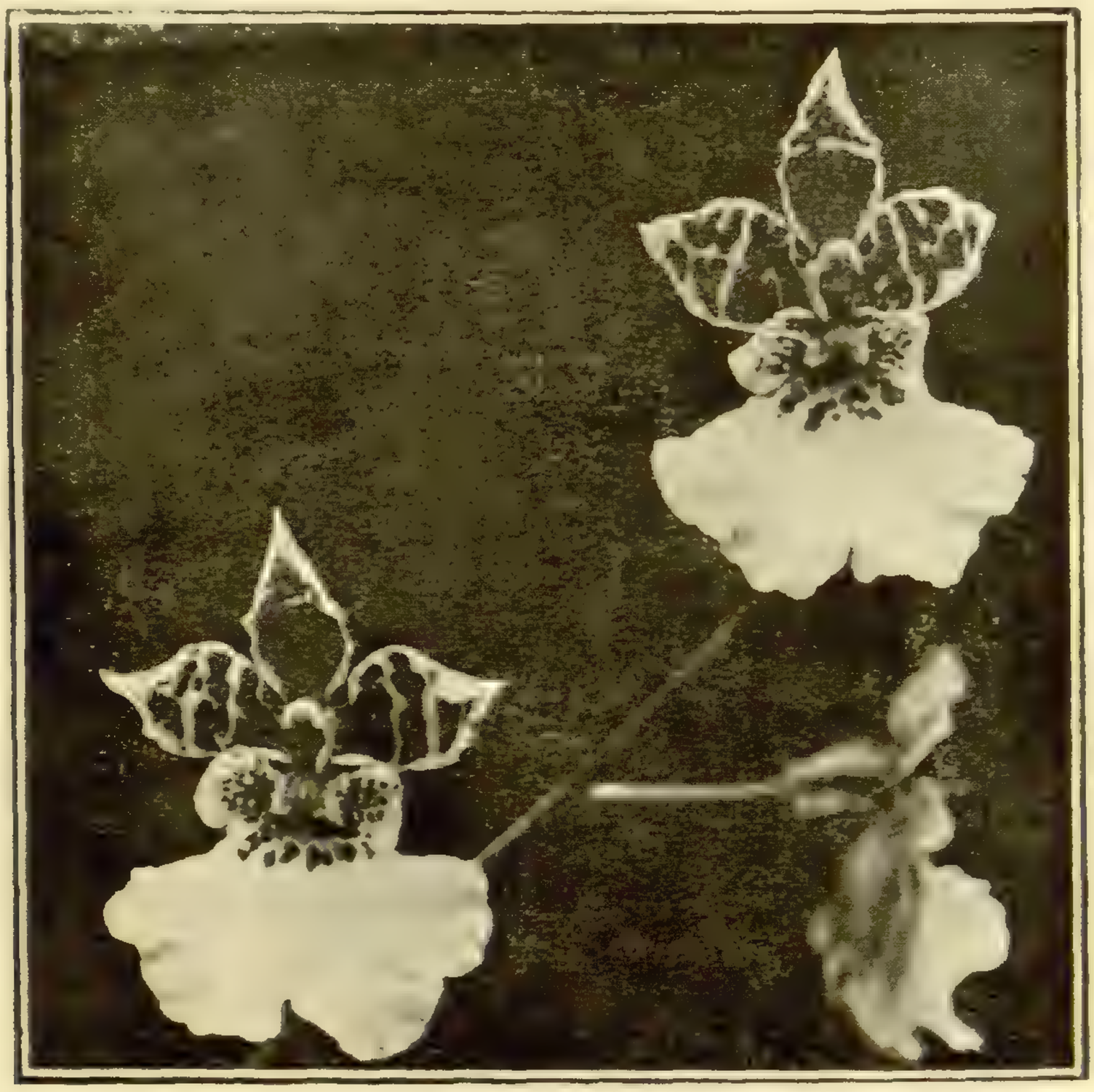

Fig. 15. ONCIDIUM PHALÆNOPSIS.

allied species, having considerably larger flowers, with some differences in structural details. It is said to occur at an altitude of 8,000 to 10,000 feet, and thus requires quite cool treatment. The flowers here figured were from a plant in the collection of the late Frau Ida Brandt, of Zurich, and it is only necessary to add that the markings are bright purple, and the ground colour of the lip white. The allied O. cucullatum is still occasionally met with, though in weak examples which give little idea if its character in native examples. Both are high alpine plants, inhabiting the cooler regions of the Andes, and growing under conditions which can only be approximately met in the Odontoglossum house. It is much to be wished that a new importation of these charming plants could be made.

SOCIETIES.

Royal Horticultural.

The usual fortnightly meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on September 7th, when there was a fine display of Orchids.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (Hon. Sec.), Sir Harry J. Veitch, Arther Dye, Walter Cobb, R. A. Rolfe, E. R. Ashton, J. E. Shill, F. K. Sander, S. W. Flory, T. Armstrong, A. Mc Bean, F. J. Hanbury, Stuart H. Low, and W. J. Kaye.

First-class Certificate.

Brassocattleya Irene var. grandis (Bc. Maroniæ × C. Dowiana aurea).—A very large and handsome form, light rosy mauve in colour and with a yellow disc to the well-fringed lip. From Messrs. Stuart Low & Co.

Awards of Merit.

Brassocattleya Lisette (Bc. Mariæ × C. Dowiana aurea).—A very richly coloured hybrid of excellent shape, the segments being dark purple with some yellow in the throat of the lip. Exhibited by W. R. Fasey, Esq.

Brassocattleya Maroniris var. Canary (Bc. Maroniæ × C. Iris).—A very beautiful variety, with broad, canary yellow sepals and petals, the lip rose-pink in front, and with a dark yellow disc. Exhibited by the Duke of Marlborough.

Cattleya Abekeniæ (Dowiana × Rothschildiana).—A charming hybrid, having light yellow sepals and petals of good shape, while the broad lip is light purple in front, and the disc dark yellow. From W. R. Fasey Esq.

Cultural Commendation.

Cattleya Iris majestica.—To Messrs. Armstrong and Brown for a splendidly grown plant, bearing spikes of six and seven fine flowers.

Silver-gilt Flora Medal.

To the Duke of Marlborough, Blenheim, Woodstock (gr. Mr. J. T. Barker), for a brilliant group of hybrids raised in the collection, and including over a hundred well-grown plants. Noteworthy among them were examples of Læliocattleya Soulange with five and six flowers on a spike, Lc. Mrs. T. Ward (Hiawatha × Lustre), various forms of Brassocattleya Maroniris, the var. splendens having large mauve flowers, and others of the Cattleya group too numerous to mention.

Silver Flora Medals.

To Messrs. Armstrong & Brown, Tunbridge Wells, for a fine group of showy Cattleyas, Læliocattleyas, Odontoglossums, etc., particularly interesting being the forms of Lc. Golden Wren (C. iridescens × Lc. Thyone),

varying from yellow to orange, with a crimson lip, and the richly-coloured Sophrocattleya Atalanta (Sc. Ariadne × C. Eros).

To Messrs. Charlesworth & Co., Haywards Heath, for a beautiful group of scarlet Odontiodas and white and blotched Odontoglossums, Cattleya Desdemona (Fabia × Thurgoodiana), C. Nagoya (Warscewiczii × Elvina), and other good things.

To Messrs. Stuart Low and Co., Jarvisbrook, for a bright and attractive group, in which noteworthy subjects included Brassocattleya Eileen (C. Dowiana aurea × Bc. Maroniæ), the fine Læliocattleya Sargon (C. Dowiana aurea × Lc. Lustre), and others.

Silver Banksian Medals.

To H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), for an interesting and varied group, containing the pure white Cœlogyne Veitchii, Masdevallias, and a series of showy autumn-flowering Orchids.

To Messrs. J. & A. McBean, Cooksbridge, for a choice group of Odontoglossums, Odontiodas, and hybrids of the Cattleya group, Læliocattleya Colmaniana illustris (Lc. callistoglossa × C. Dowiana aurea) being particularly fine.

Vote of Thanks.

To Messrs. Sanders, St. Albans, for an interesting group of autumn-blooming species and hybrids.

Other Exhibits.

Mrs. Bischoffsheim, Warren House, Stanmore (gr. Mr. Haddon), sent four pretty varieties of Cattleya Sybil (Dowiana × iridescens), and C. Van Houtte (Warscewiczii × Rothschildiana).

W. R. Fasey, Esq., Snaresbrook, sent the fine Odontoglossum Gloriana (Jasper × crispum), and Cattleya Eleanora alba.

Pantia Ralli, Esq., Ashstead Park, Surrey (gr. Mr. Farnes), sent the charming light-yellow Læliocattleya Canary (C. Fabia alba × Lc. Thyone).

At the meeting held on September 21st, there was again a good display, and the Orchid Committee was represented as follows: Sir Jeremiah Colman, Bart. (in the chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, C. J. Lucas, S. W. Flory, F. K. Sander, J. E. Shill, R. S. Thwaites, F. J. Hanbury, Pantia Ralli, R. A. Rolfe, W. J. Kaye, T. Armstrong, A. McBean, and C. H. Curtis.

First-class Certificates.

Brassocatlælia Amber (Bcl. Baroness × C. Dowiana aurea).—A superb hybrid, the flower being large and of a perfect shape, and the sepals and petals clear amber yellow, with a broad red-purple zone round the orange throat of the lip. Exhibited by Baron Bruno Schröder, The Dell Park, Englefield Green (gr. Mr. J. E. Shill).

Award of Merit.

Brassocatlælia Tucuman Fasey's var. (Bcl. Cooksonii × C. Phoebe).—A fine thing, with deep yellow sepals and petals, and the bright crimson lip somewhat elongated and with yellow veining on the disc. Exhibited by W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour).

Brassocattleya Olympus var. Nena (Bc. Maroniæ × C. Hardyana). —A fine form, having cream white segments tinged with rose, and a light yellow disc to the lip. Exhibited by Messrs. Flory and Black.

Læliocattleya Grand-Monarch (Lc. Nella × C. Trianæ Grand-Monarch).—A large and beautiful variety, having silver-white sepals and petals, tinged with mauve, and the broad lip very rich purple with some whitish veining on the disc. Exhibited by Messrs. Flory and Black.

Læliocattleya Royal Purple (C. Alexandra × C. Empress Frederick).—A very richly-coloured hybrid, the sepals and petals being violet-purple, the latter with a white basal line, and some whitish freckling, and the lip deep purple with a yellow disc. From Messrs. Flory and Black.

Silver-gilt Flora Medal.

To Messrs. Armstrong & Brown, Tunbridge Wells, for an excellent group of showy Orchids, including a brilliant example of Cattleya Maronii with six flowers, C. Armstrongiæ, C. Hardyana alba, C. Claesiana alba, C. O'Brieniana alba, Læliocattleya Maqueda and Golden Wren, Oncidium Papilio, several brilliant Odontiodas and Odontoglossums, including thè finely blotched O. Pescatorei Armstrongiæ, Cypripedium Germaine Opoix and Maudiæ, etc., in well-grown examples.

Silver Flora Medal.

To Messrs. Stuart Low & Co., Jarvisbrook, for a fine group, in which Cattleya Hardyana alba, C. Eleanora alba, C. Dusseldorfii Undine, and other white Cattleyas were conspicuous, the brilliant C. Carmen and C. Iris, forms of the fine Læliocattleya Sargon (C. Hardyana × Lc. Lustre), Lc. Haroldiana, and others, Vanda cœrulea, Dendrobium pulchellum, Cypripedium I'Ansonii and C. insigne Sanderæ, many brilliant Odontiodas Oncidium varicosum, the original O. Stanleyi, a fine natural hybrid, etc.

Silver Banksian Medals.

To Messrs. Flory & Black, Slough, for a choice little group, including Brassocatlælia Bella (Bcl. Morna × C. Dowiana aurea), Cattleya Larcrozeæ (Hardyana × Adula), Læliocattleya Nerissa (C. Antiope × Lc. luminosa), Lc. Jaquetta (Lc. Lustre × C. Empress Frederick), a fine Vanda cœrulea, and several other good things.

To Messrs. Sanders, St. Albans, for an interesting group, including the beautiful white Cattleya Hardyana alba and C. Lady Veitch, three fine Læliocattleya Soulange, Lc. Glory (fulva × Thyone), Saccolabium

acutifolium, Cœlogyne speciosa, Cypripedium Germaine Opoix, C. Gaston Bultel, and others.

Other Exhibits.

A. J. Hollington, Esq., Forty Hill, Enfield (gr. Mr. May), sent Cattleya Amy May (Empress Frederick × Dowiana aurea), most like a light form of the latter, and C. Alice Hollington, with flowers of the C. Hardyana type.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Taylor), sent fine examples of Læliocattleya Serbia and Lc. St. George Bryndir var.

Messrs. Charlesworth & Co., Haywards Heath, sent a choice little group, including Læliocattleya Doreen (Lc. Elinor × C. Dowiana aurea), yellow, with some red markings on the lip, Cattleya Rothschildiana alba, C. Mrs. Pitt Charlesworth's var., with three brilliant carmine-rose flowers, and Cypripedium Ivanhoe (Gaston Bultel × leyburnense), a richly-coloured form, most-like the former.

The meeting held on October 5th was devoted to British-grown fruit, and the Orchid exhibits were limited to plants submitted for Certificate, and these formed a very brilliant series.

The Orchid Committee sat upstairs, and was represented as follows: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Arthur Dye, E. R. Ashton, C. J. Lucas, F. J. Hanbury, Sir Harry J. Veitch, Pantia Ralli, T. Armstrong, C. H. Curtis, H. G. Alexander, J. E. Shill, R. G. Thwaites, S. W. Flory, J. Cypher, R. A. Rolfe, F. K. Sander, and J. W. Potter.

First-class Certificates.

Brassocattleya Muriel magnifica (Bc. Maroniæ × Lc. Feroniæ).—A large and very beautiful variety, having perfectly shaped rose-pink flowers, with a large chrome-yellow disc to the lip. Exhibited by W. R. Fasey, Esq.

Vuylstekeara memoria Joseph Charlesworth (Odontioda Brewü × Miltonia Charlesworthii).—A brilliant hybrid, most like the Miltonia parent in shape, and having deep maroon-crimson sepals and petals, and a very large rosy-crimson lip with a yellow crest. Exhibited by Messrs. Charlesworth & Co.

Awards of Merit.

Brassocattleya Rosita var. Harmony (Bc. Ilene × C. Dowiana aurea).—A charming variety, having white sepals and petals, and a rosy-mauve, well fringed lip with a yellow disc. Exhibited by Messrs. Flory & Black.

Cattleya The Prince (Rhoda × Dowiana aurea).—A handsome hybrid, having brilliant yellow sepals and petals, flushed with red, and a crimson lip with yellow veining on the disc. Exhibited by Messrs. Flory & Black.

Odontoglossum Dusky Queen (Jasper × Aquitania).—A large and finely shaped variety, very regularly blotched with dark mauve on a white ground. Exhibited by W. R. Fasey, Esq.

Odontoglossum Mrs. James Wood (Rex × crispum Perfection).—A very large and perfectly-shaped flower, the ground colour white, with copious dark red blotches on the inner two-thirds of the segments. Exhibited by Messrs. Armstrong & Brown.

Odontoglossum Sir Harry Veitch (Mars × Menier St. Vincent).—A fine acquisition, with richly-coloured flowers, the sepals and petals being crimson-purple with white apex and base, and the lip white with dark crimson blotches in front of the yellow crest. Exhibited by Messrs. Armstrong & Brown.

Preliminary Commendation.

Odontoglossum Emma (ashteadense × eximium).—A promising thing, the sepals and petals claret-coloured with white tips, and the lip white with a crimson blotch in front of the yellow crest. From Pantia Ralli, Esq.

Other Exhibits.

W. R. Fasey, Esq., Snaresbrook (gr. Mr. Seymour), sent Brassocattleya Lemon (Bc. Leemaniæ × C. granulosa), a pretty light yellow hybrid.

Sir Herbert Leon, Bart., Bletchley Park (gr. Mr. Field), sent finely grown examples of Dendrobium formosum and Epidendrum vitellinum, with Cypripedium Barbara (Gaston Bultel × Harrisander), Cattleya Mrs. Pitt, and Læliocattleya Acis.

The Duke of Marlborough, Blenheim (gr. Mr. Barker), sent Læliocattleya Ivanhoe Blenheim var., a beautiful white flower with intense purple lip.

Pantia Ralli, Esq., Ashstead Park (gr. Mr. Farnes), sent a good form of Odontoglossum promerens.

Baron Bruno Schröder, Englefield Green (gr. Mr. Shill), sent some beautiful cut blooms of Læliocattleya Ivanhoe.

Messrs. Charlesworth & Co., Haywards Heath, sent Odontonia Nydia (M. Hyeana × O. Harryanum), a charming thing of Miltonia shape, and clear white with rose-purple markings on the lip.

Messrs. Sanders, St. Albans, sent Miltonia Redbreast, a charming white of the M. Sanderæ type, with a claret-purple blot on the lip.

At the meeting held on October 19th there was a very brilliant display, including one of the best forms of Vanda cœrulea that we have ever seen. The Orchid Committee was represented as follows: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), C. J. Lucas, J. W. Potter, R. A. Rolfe, F. J. Hanbury, Pantia Ralli, A. McBean, E. R. Ashton, Arthur Dye, S. W. Flory, C. H. Curtis, J. E. Shill, F. K. Sander and T. Armstrong.

First-class Certificates.

Læliocattleya Ivanhoe superba (C. Dowiana aurea × Lc. eximia).—A magnificent form, the flower being very large and of perfect shape, the sepals and very broad petals being rosy mauve, and the lip ruby-purple, with yellow veining on the disc. Exhibited by Baron Bruno Schröder.

Vanda cœrulea King of the Blues.—A magnificent form, bearing a strong spike of very large dark blue flowers, the richest in colour that we remember to have seen. Exhibited by Pantia Ralli, Esq., Ashstead Park, Surrey (gr. Mr. Farnes).

Awards of Merit.

Brassocattleya Sofrano (Bc. Leemaniæ × C. iridescens).—A very beautiful hybrid, of good shape, and having clear sulphur yellow flowers, flushed with rose on the lip. Exhibited by Messrs. Charlesworth & Co.

Cattleya Dolorosa (parentage ?).—A charming thing, having pale yellow sepals and petals and a crimson-purple lip, with yellow lines at the base. Exhibited by W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour).

Cattleya Troilus (Luegeæ × Clotho).—A handsome Cattleya, having well-shaped, light mauve sepals and petals, and an undulate violet-purple lip. Exhibited by W. R. Fasey, Esq.

Cypripedium Frontline (mirum × Leeanum).—Most like a very fine C. Leeanum, and having a large white dorsal sepal, spotted with purple and with a yellow base, the broad petals and lip being yellow green tinged with mahogany brown. Exhibited by W. R. Fasey, Esq.

Sophrocatlælia Camden (Lc. Oakwood Alpha × Sc. Doris).—A charming hybrid, having deep chrome yellow sepals and petals of good shape, and the lip darker with a band of cherry red in front. Exhibited by E. R. Ashton, Esq., Camden Park, Tunbridge Wells (gr. Mr. Varnum).

Cultural Commendation.

Vanda cœrulea.—Sir Otto Beit, Lewin Water, Welwyn (gr. Mr. Lloyd), for a splendidly grown plant bearing four spikes of flowers.

Certificate of Appreciation.

Brassocatlælia citrina (Bl. Jessopiæ × C. citrina).—A remarkable little plant, with erect habit and short pseudobulbs and leaves, but the peduncle deflexed, and bearing a greenish yellow flower, with slightly fringed lip. Exhibited by Pantia Ralli, Esq.

Silver-gilt Flora Medal.

To Messrs. Armstrong & Brown, Tunbridge Wells, for a brilliant group of showy Orchids, noteworthy among them being some finely-blotched Odontoglossums and the charming O. promerens xanthotes, Odontiodas, Miltonias, Cattleyas, Læliocattleyas, and Cypripediums, the rare Bulbophyllum galbinum, Trichosma suavis, and many others.

Silver Flora Medals.

To T. H. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), for a fine group, including the handsome Odontoglossum Lady Veitch, O. grande aureum, Cypripedium Spicerianum, Richmannii, and Boltonii, the pretty little Promenæa xanthina, Trichosma suavis, Cycnoches chlorochilon, Epidendrum umbellatum, and others.

To Messrs. Charlesworth & Co., Haywards Heath, for a brilliant group, in which Cattleyas and allies were prominent, noteworthy among them being the beautiful white Cattleya Cerberus (intertexta Julietiæ × labiata alba), C. Troilus (Luegeæ × Clotho), Brassocattleya Lilian (Bc. Veitchii Queen Alexandra × C. chocoensis), cream white, Brassocatlælia Golden Crown (Bcl. Joan × C. Venus), yellow with crimson lip, and other autumn-blooming Orchids.

To Messrs. Stuart Low & Co., Jarvisbrook, for a fine group of Cattleyas, Læliocattleyas, and others, noteworthy among them being Læliocattleya luminosa aurea, Lc. Soulange, Lc. St. George, and Sophrocatlælia Anzac, with a few good Cypripediums and Odontoglossums.

To Messrs. J. & A. McBean, Cooksbridge, for a select group, in which we noted some beautiful forms of Læliocattleya Linda, Lc. Colmaniana, Cattleya Cowaniæ alba, C. Eleanora, C. Fabia, Odontoglossums, etc., with some good Cymbidiums behind.

To Messrs. Sanders, St. Albans, for a fine group, in which Cattleya Fabia with white and coloured forms of C. Hardyana were conspicuous. We noted also a beautiful example of Læliocattleya Rothschildiæ with eleven flowers, Dendrobium Devonianum, Saccolabium acutifolium, Cypripediums, etc.

Other Exhibits.

Mrs. Bischoffsheim, Warren House, Stanmore (gr. Mr. Haddon), sent Cattleya Sybil var. Primrose, with yellow sepals and petals.

H. C. Bird, Esq., Wellington House, Princes Risborough, sent a fine form of Læliocattleya Sargon.

J. Joicey, Esq., The Hill, Witley, Surrey (gr. Mr. Mackay), sent Brassocattleya Jean (Bc. Menda × C. Dowiana aurea), white with yellow disc, with good forms of Cattleya Abekeniæ and Læliocattleya Irensis, Carmencita, and others.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Taylor), sent a well-spotted Odontoglossum Moorgate (Ianthe × eximium).

Baron Bruno Schröder, Englefield Green (gr. Mr. Shill), sent Cattleya Hardybil and a few good cut blooms.

R. G. Thwaites, Esq., Streatham (gr. Mr. Gover), sent Odontoglossum autumnale (crispum × swietenicolor), a fine thing, blotched with mahogany red on a white ground, Cattleya Snowdon, and a few other good things.

Manchester and North of England Orchid.

A meeting was held at the Coal Exchange, Manchester, on September 2nd, when the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Howes, A. Keeling, D. McCleod, J. McNab, E. W. Thompson, J. Thrower, and H. Arthur (Sec.).

First-class Certificates.

Brassocatlælia Thyone (Bc. Leemaniæ × Lc. Thyone), one of the finest yellow hybrids of the section, the shape being perfect; sepals and petals deep yellow, of great texture, and the lip large, beautifully frilled, with dark centre (a Silver-gilt Medal was also awarded to it), and Bcl. Muriel (Bc. Maroniæ × Lc. Peronia), a large flower of good colour and perfect shape, with deep yellow throat; from S. Gratrix, Esq.

Cattleya Henshallii The Premier (Dupreana × Warscewiczii), a noble Cattleya, having a very large flower of rich colour and splendid shape; from P. Smith, Esq. A Silver-gilt Medal was also awarded to it.

Cypripedium Rossetti Axholme House var., the largest type of the flower seen in the North, and of perfect shape; from A. Francois, Esq.

Awards of Merit.

Cattleya Hardyana alba Axholme House var., C. Ena var. Albert Francois (Massaiana × bicolor), and Lc. Golden Oriole var. Mdlle. Marthe Derihon (Lc. Charlesworthii × C. Dowiana aurea); from A. Francois, Esq.

Læliocattleya Britannia alba magnifica (Lc. Canhamiana alba × C. Warscewiczii F. M. Beyrodt), Lc. Georgius Invincible (Lc. Invincible Orama × C. King George), and Cypripedium Climax (Alcibiades × Harrisianum); from S. Gratrix, Esq.

Læliocattleya Thyone McBean's var. (Lc. Ophir × C. Dowiana aurea); from P. Smith, Esq.

Cultural Certificate.

To Mr. A Coningsby, for a plant of Dendrobium Sanderæ.

First-class Botanical Certificate.

To Messrs. A. J. Keeling & Sons, for Eria rhynchostyloides.

A Silver-gilt Medal was awarded to S. Gratrix, Esq., West Point (gr. Mr. J. Howes), for a magnificent group, in which Cattleyas and allies were particularly well represented, with a number of choice Cypripediums.

A Large Silver Medal was awarded to J. J. Bolton, Esq., Pendleton (gr. Mr. S. Lyne), for a fine group of choice Cattleyas, Brassocattleyas, etc.

Interesting exhibits were sent by the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall); A. Francois, Esq., Doncaster (gr. Mr. D. Pitts), Capt. W. Horridge, Bury (gr. Mr. A. Coningsby); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); and Messrs. A. J. Keeling & Sons, Bradford.

At the meeting held on September 16th, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. A. Burns, D. A. Cowan, J. Cypher, J. Evans, A. Hanmer, J. Howes, D. McLeod, E. W. Thompson, and J. Thrower.

First-class Certificates.

Cattleya Eleanora (Hardyana alba × Warscewiczii F. M. Beyrodt), a very fine flower, with pure white segments, and the very broad lip shading into deep magenta, with two large white eyes, and primrose on each side of the column; from Mrs. Gratrix.

Læliocattleya Serbia Edgemoor var. (C. Enid × Lc. St. Gothard), a large flower of rich red-mauve shade; from A. Hanmer, Esq.

Brassocattleya Admiral Jellicoe var. Rosita (Bc. Veitchii × C. Lord Rothschild), a wonderfully large flower, of deep rose mauve, the lip gaining in intensity of colour at the outer edge and base; from P. Smith, Esq.

Awards of Merit.

Vanda cœrulea var. formosa and Cattleya Adula var. Sunset; from Sir Herbert Leon, Bart.

Brassocatlælia Muriel var. Goldcrest (Bc. Leemaniæ × Lc. Peronia); from A. Francois, Esq.

Cypripedium Rossetti var. Queen Alexandra; from A. Hanmer, Esq.

Lælia Dayana cœrulea; from P. Smith, Esq.

First-class Award of Appreciation.

Odontoglossum Eximillus var. superbum (illustrissimum × eximium); from A. Hanmer, Esq.

Cultural Certificates.

To Mr. A. Burns, for a batch of Odontoglossum grande.

To Mr. W. W. Field, for Cattleya Adula var. Sunset.

A Silver-gilt Medal was awarded to A. Hanmer, Esq., Burbage, Buxton (gr. Mr. G. Giles), for a rich and varied group.

Large Silver Medals were awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), and to A. Francois, Esq., Doncaster (gr. Mr. D. Pitts), for excellent groups.

Silver Medals were awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), and to Messrs. Cypher & Sons, Cheltenham, for fine groups, in both of which Cypripediums were well represented.

Interesting exhibits were sent by Sir Herbert Leon, Bart., Bletchley Park, Bucks (gr. Mr. W. W. Field); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Mrs. Gratrix, West Point (gr. Mr. J. Howes); and Messrs. Sanders, St. Albans. See above list of awards.

The Secretary desires, with deep regret, to record the death of Mr. A. J. Keeling, senior, of Bradford, an old and valued member of the Committee.

At the meeting held on October 7th, the members of the Committee present were :—Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, A. Hanmer, J. Howes, A. Keeling, D. McLeod, E. W. Thompson, J. Thrower, and H. Arthur (Secretary).

First-Class Certificates.

Læliocattleya Maudiæ Edgemoor var. (C. Dowiana aurea × Lc. Nelius), a fine round flower, of a rich canary colour throughout; Lc. St. George var. Renown (Lc. St. Gothard × C. Fabia), a finely-shaped bold flower, with richly-coloured lip; Lc. Erica (Lc. St. Gothard × C. Empress Frederick), sepals and petals rich mauve, lip large and intense in colour; from A. Hanmer, Esq.

Læliocattleya Britannia Regina (Lc. Canhamiana alba × Warscewiczii F. M. Beyrodt), sepals and petals pure white, lip richly-coloured, with white margin; from Mrs. Gratrix.

Cypripedium Madame Albert Fevrier (Germaine Opoix × insigne Harefield Hall), a large well-formed and well-spotted flower; from Rev. J. Crombleholme.

Awards of Merit.

Læliocattleya Carmencita (C. Dowiana × Lc. luminosa), Cypripedium Briton (Germaine Opoix × King George), and Odontoglossum grande Leviathan; from S. Gratrix, Esq.

Cattleya Alfred Fowler var. Faustula, Odontioda Zenobia var. lilacina, and Oncidium Forbesii maculatum; from P. Smith, Esq.

Lælia præstans Gratrixiæ and Lycaste Susanne; from Mrs. Gratrix.

Læliocattleya Hadrian (C. Enid × Lc. callistoglossa), Cypripedium Elise (Lady Dillon × Hermes); from A. Hanmer, Esq.

Odontoglossum grande Leviathan; from Mrs. Bruce and Miss Wrigley.

Cypripedium Orbis (Leeanum × Hera); from The Rev. J. Crombleholme.

Awards of Appreciation (First-class).

Sophrocatlælia Axholme (Scl. Helen × Lc. Colmaniana); from A. Francois, Esq.

Odontoglossum crispum Orpheus; from Mrs. Gratrix.

Odontoglossum crispum pallidum; from S. Gratrix, Esq.

Odontoglossum crispum Edgemoor var.; from A. Hanmer, Esq.

Cattleya Snowdon var. The Queen (Susanne Hye × labiata alba); from P. Smith, Esq.

Botanical Certificate.

Mormodes pardinum unicolor (1st-class), from A. Francois, Esq.

Cultural Certificate.

To Mr. J. Howes, for Læliocattleya Britannia Regina and Odontoglossum grande Leviathan.

A Gold Medal was awarded to S. Gratrix, Esq., West Point (gr. Mr. J. Howes), for a magnificent group of autumn-blooming Orchids, several of them gaining Certificates.

A Silver-gilt Medal was awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), for a very fine group, in which choice Cypripediums were a prominent feature.

Large Silver Medals were awarded to A. Hanmer, Esq., Burbage, Buxton (gr. Mr. G. Giles), and to Messrs. Cypher & Sons, Cheltenham, for excellent groups.

Silver Medals were awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), for a group of choice Cypripediums, and to S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), for a finely-grown plant of Cypripedium Prince Albert.

Interesting exhibits were sent by Mrs. Gratrix, West Point (gr. Mr. J. Howes); A. Francois, Esq., Doncaster (gr. Mr. D. Pitts); P. Smith, Esq.. Ashton-on-Mersey (gr. Mr. E. W. Thompson), and to Messrs. A. J. Keeling & Sons, Bradford. See above list of awards.

At the meeting held on October 21st, the members of Committee present were:—R. Ashworth, Esq. (in the chair), Mrs. Slingsby, Messrs A. Burns, J. C. Cowan, A. Coningsby, J. Cypher, A. G. Ellwood, J. Evans. A. Hanmer, J. Howes, A. Keeling, D. McLeod, Dr. Paul, and H. Arthur (Secretary).

First-class Ceftificates.

Brassocattleya Soprano, Bc. Moonbeam (C. Lido × Bc. Leemaniæ), Bc. Iris (Bc. Mary Gratrix × Lc. Ophir); Brassocattlælia Golden Crown (Bcl. Joan × C. Venus), Cattleya Ceberus (intertexta alba × labiata alba Harefield Hall), and C. labiata alba Mary Gratrix; from S. Gratrix, Esq.

Cattleya labiata Monsieur Chanchet, and Cattleya Pierre Francois (C. Mrs. Pitt × Mantinii); from A. Francois, Esq.

Brassocatlælia Eileen (Bc. Monita × Lc. St. Gothard), Læliocattleya Mita var. Sunset (C. Fabia × Lc. Golden Oriole); from A. Hanmer, Esq.

Brassocattleya Lilian (Bc. Veitchii var. Queen Alexandra × C. chocoensis alba); from Mrs. Gratrix.

Cypripedium niveum var. Debutante; from Mrs. Slingsby.

Awards of Merit.

Brassocattleya Minerva var. Alport Gem, Cattleya Dionysius (Fabia × Warscewiczii); from S. Gratrix, Esq.

Læliocattleya Nelius, Odontoglossum eximium var. Apollo and Cypripedium Draco Edgemore var; from A. Hanmer, Esq.

Odontoglossum Iphis (Her Majesty × amabile Ajax); from Capt. W. Horridge.

Awards of Appreciation (First-class).

Odontoglossum crispum vars. The Prince and Triumph, and O. amabile cœruleum; from A. Hanmer, Esq.

Odontoglossum crispum Diadem; from S. Gratrix, Esq.

Cultural Certificates (First-class).

To Mr. J. Howes, for Læliocattleya luminosa sulphurea and Brassocattleya Oberon. To Mr. A. Burns, for Epidendrum vitellinum autumnale.

A Gold Medal was awarded to S. Gratrix, Esq., West Point (gr. Mr. J. Howes), for a magnificent group, in which both Cypripediums and choice representatives of the Cattleya group were represented in great variety.

A Large Silver Medal was awarded to A. Hanmer, Esq., Burbage, Buxton (gr. Mr. G. Giles), for a very fine representative group.

Silver Medals were awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), and to Capt. Horridge, Bury (gr. Mr. A. Coningsby, for fine groups, the former including the rare Catasetum Bungerothii, and the latter Dendrobium Goldiei, another plant now very rarely met with.

Interesting exhibits were sent by Mrs. Gratrix, West Point (gr. Mr. J. Howes); Mrs. Slingsby, Beverley, East Yorks; A. Francois, Esq., Doncaster (gr. Mr. D. Pitts); and to Messrs. A. J. Keeling & Sons, Bradford.

Eriodes barbata, Rolfe.—Five years ago (*O.R.*, xxiii. p. 327) we gave the history of an Orchid that Lindley had called both Tainia barbata and Eria barbata, and showed that it did not belong to either genus. It was afterwards discovered that a few months earlier it had been separated under the name of Tainiopsis barbata, Schlechter (*Orchis*, ix. p. 10, fig. 1). The generic name Tainiopsis, however, had already been used by Hayata for a Formosum plant (*Ic. Pl. Formos.* iv. p. 63), originally described and figured as Tainia unguiculata (*l. c.*, p. 61, fig. 28), but which has more of the general character of Acanthophippium, and which must, therefore, bear the name of Tainiopsis unguiculata. Eriodes barbata may be regarded as most closely allied to Spathoglottis, with a marked difference in floral structure. The plant is a native of the Khasia Hills, Shillong, Upper Burma and the Chengmai district of Siam.—R.A.R.

"Hybrids in Nature.—Our gardens abound with hybrid plants. Although the gardener's skill originates them, there seems little reason why they should not occur in nature. . . . Why should we refer to hybridity to account for individual changes, especially as the warmest advocates of natural hybridity rarely get beyond supposition in any case.—T. Meehan."

The conclusion seems to be that hybrids ought to occur in Nature, but that those who think they do so, know very little about it!!—R.A.R.

ORCHID NOTES AND NEWS.

THE remaining meetings of the Royal Horticultural Society for the current year are November 2nd, 14th, 30th, and December 14th, when the Orchid Committee will meet at 11.45 a.m. The date of meetings in the new year which complete the current session are January 11th and 25th.

The corresponding meetings of the Manchester and North of England Orchid Society, at the Coal Exchange, Manchester, are November 4th and 18th, December 2nd and 16th, and January 6th and 20th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

A contribution to the Orchidaceous flora of Queensland, by Dr. R. S. Rogers and C. T. White, F.L.S., has just appeared (*Proc. Roy. Soc. Queensl.*, xxxii. pp. 117-124), and a reprint has been kindly sent to us by the authors. A preliminary note states: "The present paper is the first of a series of contributions to our knowledge of Queensland Orchids, and is the result of a critical examination of material in the Queensland State Herbarium. In addition to description of new species and critical notes the opportunity is taken of recording any locality records that add to our knowledge of the distribution of any particular species." The present paper contains descriptions and figures of two novelties, *Zeuxine* oblonga and *Z.* attenuata, also a figure of Acianthus amplexicaulis, a plant first referred by Bailey to Microstylis and afterwards to Liparis, though Acianthus is its true position. We hope to be favoured with later contributions to the series.

A flower of Odontioda Bradshawiæ, raised by intercrossing two forms of this hybrid, is sent by Sir Jeremiah Colman, Bart., Gatton Park, Surrey. We do not know the character of the parents, but the flower sent has a very distinct white pattern, indicating a partial reversion to the original Odontoglossum crispum. There are others, and probably a good deal of variation might be observed in such a batch of seedlings.

A spray of Odontioda Lambeauiana (C. Nœtzliana × O. Lambeauianum) is sent by Neville Chamberlain, Esq., M.P., Westbourne, Edgbaston, Birmingham. It is a brilliant form, with scarlet-red sepals and petals, and traces of yellow markings at the base of the petals, and in front of the crest of the lip. The plant bears a spray of thirty flowers, and the five flowers sent are borne by one of the two or three side branches. It was purchased as Odontioda Diana, and was thought to be that until it flowered, but in that the influence of O. Harryanum can be traced in the spiny teeth of the

crest, and perhaps in the suffusion of the scarlet in the sepals and petals (as in O. Charlesworthii). Some of the white Odontoglossums, particularly if containing O. Pescatorei, give a distinct pattern in the segments, and if the parentage has been rightly interpreted, the influence of that species is present through O. Rolfeæ, one of the grandparents.

Mr. T. W. Briscoe, gardener to W. R. Lysaght, Esq., Castleford, Chepstow, has kindly undertaken to do the Calendar of Operations for the coming year. Mr. Briscoe was for a long time in charge of the Orchids at Kew, and afterwards of the Orchid Nursery of Messrs. James Veitch & Sons, Langley, Slough, since acquired by Messrs. Flory & Black, so that he has a thorough knowledge of both botanical Orchids and of the whole work of hybridisation.

The *Orchid Review* completes its twenty-eighth volume with the current issue, and will be continued in its existing form for the time being. With the still increasing cost of printing it is impossible to return to the monthly issue for the present. Everything connected with Orchid culture has suffered a serious set-back by the War and its disastrous aftermath, but there are signs of improvement, and we hope that a return to more normal conditions will follow. Our thanks are due to a few loyal friends who have helped us to carry on under very difficult circumstances, and we shall rely on the kind co-operation of our readers to restore the work to its original form at the earliest possible moment.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work.*]

C.H.L.—The Coryanthes has now produced a fine inflorescence, but the buds shrivelled and fell off before one-third developed, owing to a bad spell of fog. Probably the next will be more fortunate.

L. & H.—Bollea Lalindei, Rchb. f., a plant that we have not seen alive for a long time. The flower has suffered through mould, and would have travelled better and have been more examinable if pressed between a few folds of blotting paper. B. cœlestis has a rather larger flower, and other differences.

H.C.P.—Received with many thanks and forwarded to its destination.

C.S.—The Orchis group cannot be classified by root characters; such a course would include plants which are structurally different. Habenaria of the *British Floras* is a confessedly mixed group, and we believe that both Gymnadenia and Cœloglossum are sufficiently distinct.

Orchid Grower.—The leaves of Vanda cœrulea are being examined. It looks like the work of some scale insect, but in the case of a new outbreak the leaves should be sent without being cleaned. We do not remember to have seen it before.

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